

EUROPE IN PICTURES

No. 6 NORWEGIAN VALLEY

The valley was last covered by a glacier about 10,000 years ago. The ice has now almost disappeared, but the valley floor is still covered with a layer of drift.



No. 7 SWISS GLACIER

The snow which falls on the mountain slopes melts in summer, but as it is continually being replaced from above, the snow accumulates and flows down into the valley. The snow is about 100 feet thick in the valley, and it is covered with a layer of drift.



EUROPE IN PICTURES

BY

H. CLIVE BARNARD

M A., B LITT.

CONTAINING FIFTY-SEVEN ILLUSTRATIONS—THIRTY-TWO OF WHICH ARE
IN COLOUR—AND ALSO FOUR MAPS



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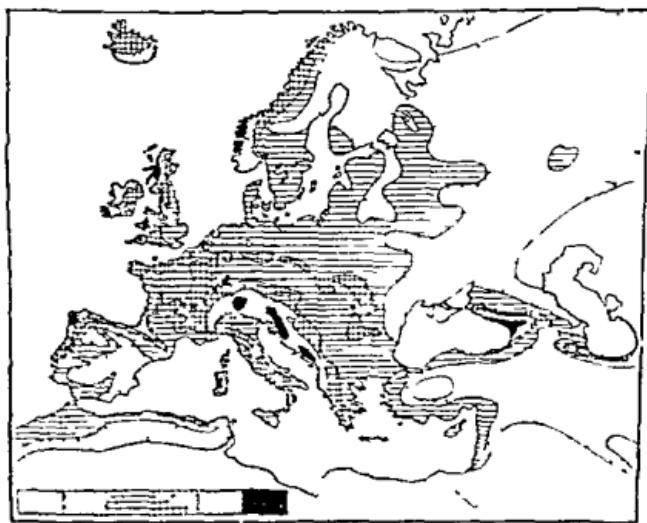
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N.B.—The quotations given beneath some of the pictures are taken from A & C. Black's "Descriptive Geographies from Original Sources," or "Peeps at Many Lands" &c. &c.



No. 3 EUROPE OROGRAPHICAL (After the Diagram Co.)



No. 4 EUROPE MEAN ANNUAL RAINFALL (After the Diagram Co.)

The prevailing winds in Europe are the SW. and SSW. and these bring with them abundant moisture which can be expected in passing over the A. I. lands. When these winds encounter a mountain range they are forced to rise, and are thus driven to pass over mountain ridges, and it falls in the form of rain. If the above means are carefully compared it will be seen that mountainous districts-and especially those near the Atlantic, swallow-up the heaviest rains, and that the rainfall increases northward and eastward because the southwest winds tend to lose more and more of their moisture as they pass over the C. m. During the summer time these southwest winds shift their position northward, and the SW. monsoon region is then affected by the SW. Trade, and not by the SW. monsoon. Hence a summer very dry in the SW. m. is the part of Europe, and the heavy rainfall on the western side of the Alps and the Pyrenees depends on winter.



TITI ARDI NIRS.

To the south of the valley of the Nive, for more than a thousand feet the land is covered by thick forests where deer and wild boars abound. The river in the picture is the Lascia, a right-hand tributary of the Nive. Refer to FIG. 39.

No. 6.

The Dolomites attract the attention of the early geologists, some 150 years ago, and the like structures still call like the jaws of a giant on the limestone with an encrusted precipice many thousand feet high. In one of the sea-palaeozoic

TITI DOLOMITES



No. 5.

The Dolomites attract the attention of the early geologists, some 150 years ago, and the like structures still call like the jaws of a giant on the limestone with an encrusted precipice many thousand feet high. In one of the sea-palaeozoic

Europe in Pictures.

INTRODUCTION.

ONE has only to look at a physical map of the world in order to realise that, although the continents of Africa, America, and Australia are each a clearly distinguished land-mass, Europe and Asia are not separated by any definite physical boundary. They really form one huge continent, to which the name of Eurasia is sometimes given; but largely for historical reasons Europe is usually classed as a distinct continent. It is separated on its eastern side from Asia by the Ural mountains and Ural river, the Caspian Sea, and the Caucasus mountains. On its other three sides it is bounded by the sea—on the south by the Mediterranean, on the west by the Atlantic, and on the north by the Arctic.

But although Europe may not seem at first sight to be geographically separate from Asia, yet it may be considered so because its system of rivers and waterways is distinct from that of Asia. Europe has two main sea-highways: one along the Atlantic with a branch into the Baltic, and one along the Mediterranean with a branch into the Black Sea. The Arctic, although usually classed as a separate ocean, is really a bay of the North Atlantic, as a globe will show. The two sea-highways, then, grip the great peninsula of Europe between them.

Each of them is supplied with a system of river-highways—those flowing into the Atlantic or Baltic, and those flowing into the Mediterranean or Black Sea. The streams running into the Arctic Ocean are of little use for through traffic to the sea because of the prevalence of ice, and the great Volga is in the same plight because it flows into the land-locked Caspian Sea. But on the west coast of Europe, north of Spain, there is a huge "continental shelf" where the water is less than 100 fathoms or 600 feet deep; the edge of this shelf, where it slopes down from shallow water into the abyss of the ocean, can be traced in the first map on page 5. Twice every day a tidal up and down movement of the whole body of the water comes in from the open Atlantic. Its size is only a few feet in height, but when it meets the edge of the continental shelf its speed is reduced, although its height is greatly increased—just as the ordinary waves on our coast grow bigger as they come in landwards over a gradually sloping shore. Out in the Atlantic the tidal motion of the sea is not noticeable, and even on the coast of Portugal, where the land shelves down abruptly into the depths of the ocean (refer to the map), it is quite small. But from the Garonne to the Elbe the tides are much more marked because of the shallowness of the sea, and they run far up the river mouths, forming fine estuaries.

The Baltic, Mediterranean, and Black Seas have such narrow entrances that the Atlantic tidal wave is obstructed, and therefore these seas are practically tideless. Near the head of the tidal estuaries of the river ways, leading to and from the great Atlantic sea way, busy seaports have grown up, chief of them are Bordeaux on the Garonne, Nantes on the Loire, Rouen on the Seine, London on the Thames, Antwerp on the Scheldt, Rotterdam on the Rhine, Bremen on the Weser, and Hamburg on the Elbe. In contrast to their position, it is noticeable that the great ports of the tideless Mediterranean, Baltic, and Black Seas are placed on the coast itself, and not a little way up the mouths of rivers.

The upper map on page 5 shows that the most mountainous parts of Europe, with the exception of Scandinavia, lie just north of the Mediterranean. The Iberian Peninsula is an immense plateau bounded on the north by the Pyrenees, east of them lies the huge chain of the Alps continued northwards in the Jura and Vosges, southwards in the Appenines, and south eastwards in the Illyrian and Pindus Ranges. North of the last named are the Carpathian and Transylvanian Mountains. But, in a region where so many mountains are found near the coast, there will be few long, slow flowing, and navigable rivers. Again, in the Mediterranean region there is little rain in summer, and this makes the volume of the rivers tend to vary, though some of them receive compensation in the early summer in the form of melting snow. On the whole, then this Mediterranean district is, for these reasons, ill provided with useful rivers though the Rhone, Po and Danube afford important exceptions.

North of this mountainous region of Southern Europe is a huge plain, through it flow to the Atlantic the slow rivers with estuaries, which have already been mentioned above. Into the Baltic run the Oder, Vistula, and several smaller streams. In the great plain drained by these rivers a large part of the coal and iron deposits of the Continent are to be found. Again, the south west and west winds which prevail over the North Atlantic, bring moisture which condenses into rain along the western side of Europe, and thus there is in all the western parts of the Central European Plain a rainfall sufficient all the year round for agriculture (refer to the lower map on page 5). The nearness of the ocean also helps to make this region warm in winter and cool in summer. It is a well known fact that sea is heated or made cold more slowly than land, hence in a marine district the winter tends to be warmer and the summer cooler than in a place with the same latitude but situated in the heart of a continent. Thus a marine climate is equitable, whereas a continental climate is often extreme. This fact will



Under 32° 32° Over 32°
Europe Mean Isotherms for January (after Hahn).
Temperature in degrees (Fahrenheit).



Under 59° 59° Over 59°
Europe Mean Isotherms for July (after Hahn).
Temperature in degrees (Fahrenheit).

Drawn by J. B. Reynolds.

No 7

An Isotherm is a line which connects places having the same average temperature. Thus it will be clear from the above maps that the average temperature for January in districts lying north and east of a line drawn past western Norway the head of the Adriatic, and the north of the Black Sea is at freezing point (32° F.) or below it, while in July the average temperature south of a line passing through Gibraltar, the mouth of the Rhone, Constantinople and the southern part of the Urals is 75° F. or above it.

help to explain why, in the temperature maps shown above, the general direction of the isotherms is from N.W. to S.E. in January, and from S.W. to N.E. in July. The average temperature in January at Moscow in Central Russia is 18° F., but in July it is as high as 66° F.—a difference of 58° . At Glasgow, which is in much the same latitude as Moscow, but which gets the benefit of maritime influences from the Atlantic, the mean temperature in July is 58° F., and in January 38° F.—a difference of only 20° . Glasgow, then, has a very equable climate, and this is also true of most of the western part of the continent of Europe. Hence there is hardly a day in the year when it is too cold or too hot to work. All these things, then,—long and slow-flowing rivers with estuaries, which have fostered the growth of seaports, valuable minerals, sufficient rainfall for agriculture, and a pleasant climate—have helped to make France, Germany, and the Low Countries the most important parts of the continent of Europe.

Originally most of the plain of Central Europe was covered with dense forests, which formed a broad belt stretching right across the Continent, and although many of them have now been cleared away to make room for agriculture, large tracts are still left, especially in Russia and Germany (see picture 40). In the northern part of this forest-belt the trees are of the coniferous type—that is to say, they bear cones and do not shed their leaves in autumn, but are evergreens. The most common coniferous trees are the pine and the fir. In the south

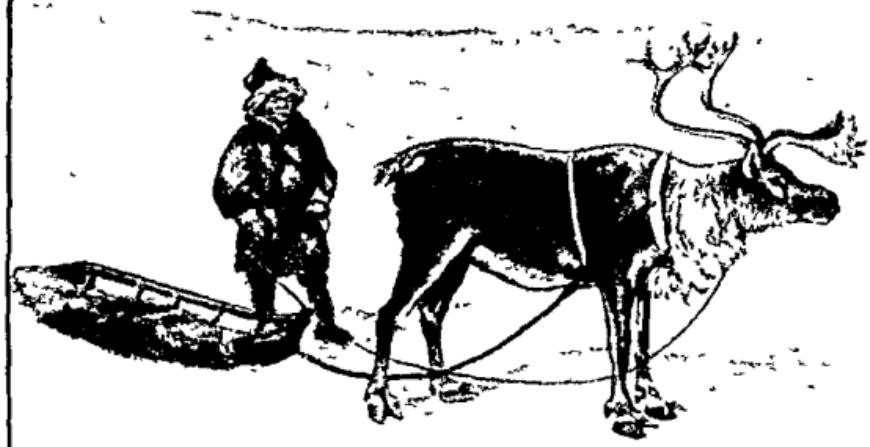
of the forest region trees are ~~found~~^{ac} which shed their leaves annually, and are therefore said to be ~~deciduous~~^{obst}; typical of them are the oak, the beech, and the elm. Between the two belts is a region of mixed forests in which coniferous and deciduous trees alike are to be found.

Towards the north the ~~leaf~~ of the trees becomes smaller and sparser, until they give place entirely to the tundra on the swamps which are frozen hard during the greater part of the year. In winter the tundra is a terrible icy desert, such as is shown in the ~~Ell~~ picture 8. Its inhabitants are of a low type, ~~and~~ necessarily ~~exist~~ ^{exist} on a precarious living. The reindeer is an important source of livelihood; it can exist on the moss, for which it digs in the snow, and it gives a rich milk. Even when dead the reindeer still serves many valuable purposes; its hide is used for making clothes, its bones and horns for tools and weapons, its sinews for thread, and its flesh for food. It has well been said, therefore, that prosperity among the tribes of the tundra is measured by the possession of reindeer.

On the south-eastern side of the Central European forest-belt is a wide grass-land; though this also has been to a large extent cleared for agriculture. The chief occupation of the inhabitants of this district is the breeding of sheep, cattle, and horses, which wander hither and thither over the plains. Pictures 9 and 57 give typical scenes in this region. In the western Mediterranean district, where there is a heavy winter rainfall and a summer drought (see note to the maps on page 5), there are forests of trees which do not shed their leaves, and which are able to store up moisture during the dry summer months. Trees of this type are the olive, the evergreen oak, and the cork tree, but they have been cut down and cleared away even more ruthlessly than the deciduous and coniferous forests of Central and Northern Europe.

It will be clear from what has just been said that we can distinguish four chief areas of natural vegetation in Europe. In the south-west are the evergreen Mediterranean forests; in the south-east, grass-lands; across the centre, forests; and in the extreme north, the tundra. The first three of these regions have been to a great extent altered by their inhabitants, to make way for agriculture or the working of metals; but the tundra is still untouched by the advance of civilisation, and is likely to remain so.

In dealing with the continent of Europe in this book, it will be convenient to divide it up into three chief regions, each corresponding very roughly to one of the sides of a huge triangle enclosing the Continent. Its three points (best seen on a globe) are at Gibraltar, the north-east corner of European Russia, and the Caucasus; and the three chief regions will thus be—(1) the Mediterranean region; (2) Central and North-West Europe, including Scandinavia; (3) Eastern Europe.



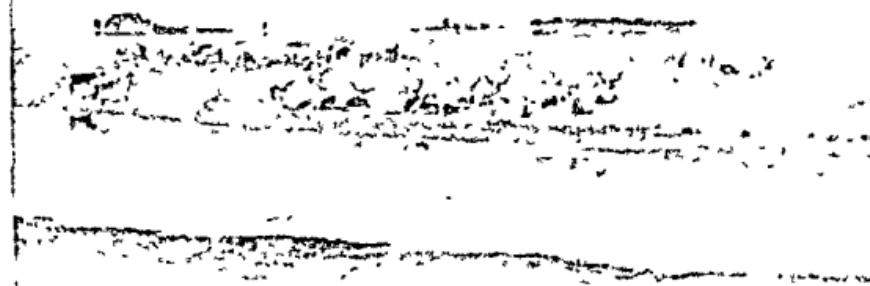
VERN NESTEL
© ALAN WRIGHT

From *Stevens and the World*

No. 8.

THE TUNDRA AND A REINDEER SLEDGE

For two-thirds of the year the Tundra is a snow-covered desert, but during the short summer the snow melts and brilliant-coloured flowers and stunted berry-bearing bushes spring into life. At this time too the Tundra is the home of innumerable water-birds and thousands of reindeer.



DAIRY STEPPE

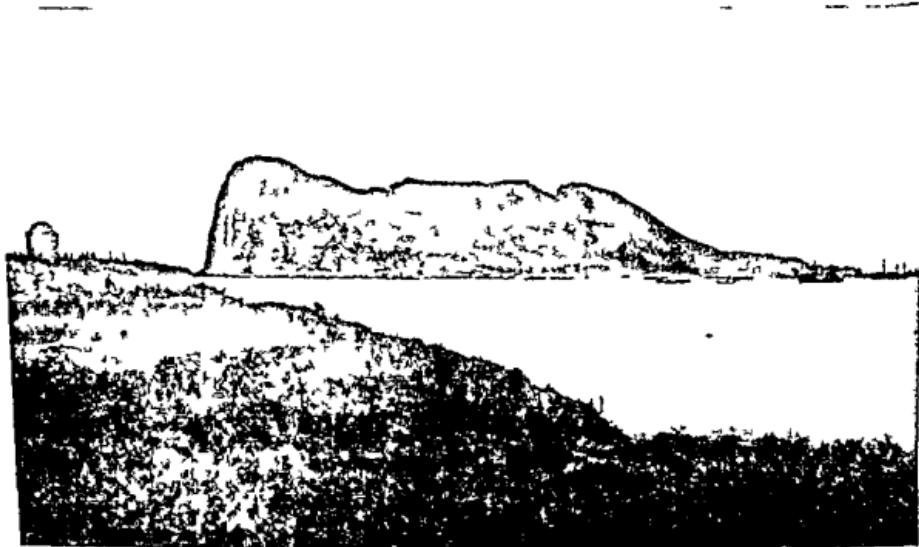
CATTLE ON THE GRASS LANDS

In Hungary the grasslands known as the *Lavant* are known as *pastures*. On the *steppes* the grass has a summer, the moisture evaporates quickly, and there are parts of the dry and withered appearance of the steppes. In southeast Asia the grasslands are called *steppes*, but this term is often used to designate arid desert regions in other parts of the world.



No. 10

Ulysses deriding Polyphemus
Ulysses was a clever, one-eyed giant who captured Ulysses and kept him prisoner. At last Ulysses succeeded in putting out the giant's only eye and thus escaping. Polyphemus can be seen in the background, showing rage with his hands over his blindfold. The original picture is in the National Gallery, London.



No. 11

CIRCE
The rock is shown, bounded by 3 passages and a causeway, in her world famous hall. It is a large pile of rock, 1000 ft. high and 1000 ft. wide. The town has been destroyed, and a new one is being built on the site. The shape of the rock has often been compared to a lion lying down.

I.—THE MEDITERRANEAN REGION.

THIS region contains three peninsulas—the Iberian and Balkan Peninsulas with Italy between them; it also includes a large number of islands. The sea itself is about 2800 miles in length, and, although practically land-locked, is now an important highway to the East *via* the Straits of Gibraltar and the Suez Canal. It is surrounded on nearly every side by steep coasts, which shelve down abruptly into deep water; but there is a ridge covered with shallow water connecting Sicily with Africa. The whole region is interesting to us, because some of the earliest civilised nations of which we have any record arose into prominence around its shores. It was on the Mediterranean that they first learnt the art of navigation, and of carrying on commerce over the sea; this was easy, because the Mediterranean contains many islands, and it was possible to coast from one end of it to the other without ever losing sight of land and so missing the way. Among the earliest navigators of the Mediterranean were the Phoenicians, whose cities of Tyre and Sidon lay on its east coast, north of Palestine, and are frequently mentioned in the Old Testament. The Phoenicians founded an important colony at Carthage, on the north coast of Africa, and for a long time the commerce of the Mediterranean was in their hands. They even sailed beyond the Straits of Gibraltar as far north as Britain, whence they brought back tin from the mines of Cornwall. After the Phoenicians there arose another great maritime people in the Mediterranean—the Greeks. Even as early as perhaps the eleventh century before Christ the *Odyssey* of Homer was written, in which were described the adventures of Ulysses, or Odysseus—to give him his Greek name. He had taken part in the siege of Troy, and the *Odyssey* is a record of his exploits and escapes while navigating the Mediterranean on his way from Troy to his home in Ithaca, one of the Ionian islands on the west coast of Greece. One of his adventures forms the subject of a famous picture by our great English painter Turner; a photograph of it is reproduced on the opposite page. The *Odyssey* has been many times translated into English, and it forms as delightful an adventure book as can be imagined. In later days the Greeks still continued to be sailors, and they founded many colonies on the shores of the Mediterranean and Black Seas. At last, however, they gave place to the Romans, who were more famous as soldiers than as sailors; but these in their turn were finally overthrown by invaders from the north.

In the Middle Ages the navigation of the Mediterranean again became important. In those days there was little fresh meat to be had in winter, and salted or dried meat took its place. Such food is not very appetising, and accordingly there arose a demand for spices and condiments such

as could only be obtained from South-East Asia. These goods, together with silks and precious stones, were brought by boat either up the Persian Gulf and then by caravan over the Syrian desert to the ports of the Levant, or else up the Red Sea and then overland to Alexandria. During the thirteenth, fourteenth, and fifteenth centuries, the traders of Venice and Genoa carried on an extensive commerce between these ports of the Eastern Mediterranean and their own cities; by this means the spices, silks, and gems of the East were distributed throughout Europe. When, at the end of the fifteenth century, the Portuguese discovered a sea-route to Eastern Asia round the Cape of Good Hope, the trade of the Mediterranean naturally declined, and thus Venice and Genoa lost much of their former importance. But the cutting of the Suez Canal, in 1869, opened up a direct sea-route to the East, *via* Gibraltar and Port Said, and thus the Mediterranean became once more an important highway for trade between Europe and the East. Venice and Genoa are again becoming prosperous as ports through which the products of South-East Asia are brought into Central Europe. It should be noticed, however, that the trade route through the Mediterranean is in the hands of Britain, because she holds the keys of either end of it. In the west is the fortified rock of Gibraltar (see picture 11), and in the east is Aden, a British possession which commands the entrance from the Indian Ocean into the Red Sea.

(a) The Iberian Peninsula.

This consists mainly of a huge plateau with an average height of about half a mile above sea-level. It slopes on the whole from north-east to south-west, as is shown by the direction of the rivers Guadquivir, Guadiana, Tagus, Douro and Minho. These streams are shallow, and in their rapid course have scarred deep valleys, such as that shown in picture 12, on the face of the plateau. Owing to this fact and the existence of parallel ridges which seam the plateau between the river-valleys, communications are very difficult. Along the west coast the country is much lower, and traffic, therefore, easier; also the rivers, when coming out on to the plain from the plateau of the interior, tend to form rapids which are impassable for navigation. Both these causes have contributed to the formation of a separate kingdom—Portugal—along the western coast, while Spain occupies the rest of the peninsula; and it is sharply separated from France by the high and unbroken wall of the Pyrenees, which are prolonged westwards in the Cantabrian Mountains along the southern shore of the Bay of Biscay. In the north-east of the plateau is a deep valley occupied by the river Ebro, which empties itself into the Mediterranean. This stream is also shallow and rapid, and therefore



The Tagus at Toledo

No. 1

A TYPICAL SPANISH PLATEAU

A wide, flat, open plain runs through a deep gorge. The river flows through the center of the valley, and the banks are rocky and covered with sparse vegetation. In the background, a large, rugged mountain rises, its slopes partially covered by trees and shrubs. The sky is clear and blue.



No. 13

SCENE IN THE SPANISH PLATEAU

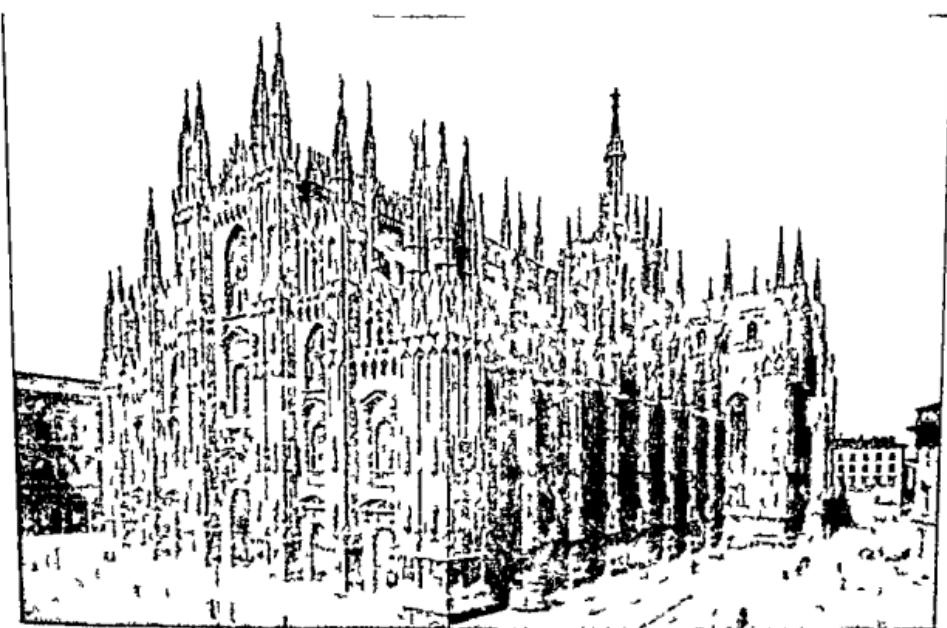
A range of hills borders the vast, featureless wastes. The road through the hills is a rough, rocky path, and the country is arid and barren. The sky is clear and blue.



No. 14

CORDOVA CATHEDRAL.

The Arab conquerors of Spain originally intended this building to serve as a Moslem mosque. Notice its crescent-shaped arches and numerous pillars and contrast this example of Moorish architecture with the Gothic cathedral of Milan which is below.



No. 15

MILAN CATHEDRAL.

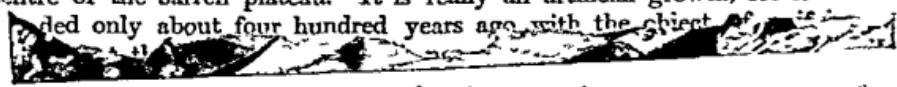
The body of the structure is entirely covered with statues and richly wrought sculpture, in the needle-like spires of white marble rising from every corner. It appears like some fables of frost-work, which winter traces on the windows and panes. It is said that the design of this building was based on the shape of Monte Rosa—one of the Alpine peaks which lies on a sight of the cathedral.

Photo, Bros.

of little use for navigation; but a canal has been cut alongside it above and below Saragossa, and this can be used by small vessels.

The Iberian Peninsula in winter receives moisture from the Atlantic; this is precipitated on the western side, the rainfall being heaviest in the north-west, and decreasing eastwards and southwards (refer to the second map on page 5). In summer there is very little rain in the Mediterranean region, and most of the Iberian Peninsula receives less than 1 inch of rainfall during the month of July. Thus, although Portugal has a fairly moist climate, and can grow cork trees, maize, and vines, a large part of the Spanish plateau is barren and almost treeless. An idea of it can be gathered from picture 18. It is available chiefly for pasturing sheep and goats. To make up for lack of rain use is made of irrigation, and this is specially the case in the river-valleys and the coastal plains at the base of the central tableland. The valleys of the Guadalquivir and Ebro, and the "huertas" or gardens of Valencia and Murcia are the most fertile districts in Spain. They are devoted to the growing of all kinds of Mediterranean fruits—oranges, figs, olives, and pomegranates. Elche, in Murcia, is the only place in Europe where dates can ripen out of doors. Besides these fruits, silk, onions, vines, rice, and sugar are also produced, and even on the more fertile parts of the plateau itself wheat and esparto grass, used chiefly in paper-making, can be raised. Spain is also rich in mineral wealth, though its resources are still not fully developed, iron is obtained in immense quantities in the neighbourhood of Bilbao, coal is found in the Cantabrian Mountains, and there are deposits of zinc, lead, and silver in various parts of the peninsula.

Since the most productive districts of the whole region are on the coast, it is here also that the chief towns will be found. Barcelona is the largest port in Spain, having a good harbour and cotton manufactures. Valencia, Alicante, Cartagena, Almeria, and Malaga serve as outlets for the fruits and metals of the south-eastern coastal regions; while Cadiz and Seville, which can be kept open for large vessels only by dredging, are the ports of the fertile Guadalquivir Plain. The chief seaports of Portugal are Lisbon, the capital, and Oporto; the former possesses one of the finest harbours in Europe. Along the north coast there are no good natural harbours, and the Cantabrian Mountains make access to the interior difficult; still the local minerals are exported chiefly from Santander and Bilbao. Madrid, the capital of Spain, is situated in the centre of the barren plateau. It is really an artificial growth, for it was



No 18
The picture shows Valencia with the big steep spires of the cathedral and the Campanile, the bell tower, which is
the highest in Europe. The picture was taken at sunset, when the sky is filled with a golden glow.

The southern part of Spain was for several centuries in the hands of Mohammedan invaders, who conquered the country from Morocco. They were finally overcome in 1492, but traces of them still survive in the many beautiful buildings with Moorish architecture, such as Cordova Cathedral, illustrated in picture 14.

(b) Italy.

Like the Iberian Peninsula, Italy is cut off from the rest of Europe by a high mountain barrier; but the Alps are not, like the Pyrenees, a practically impassable barrier, save at each end. Across them four lines of railway have been constructed, and there are several comparatively low passes through which run good roads. Hence Italy belongs to Europe more really than does Spain; it is still said that "Africa begins at the Pyrenees." At the south-west corner of the Alps there is a spur of mountain skirting the Bay of Genoa, and connecting them with the Appenines which form the backbone of the peninsula. The Appenines are flanked by coastal plains which are broadest on the west side in the north, and on the east side in the south. Like the Alps, these mountains can be crossed with ease in several places. Between the Alps and the northern Appenines is the low-lying basin of the Po, which is merely a continuation landwards of the shallow Adriatic Sea. In several of the valleys opening out of the Alps into this plain are very beautiful lakes; among them are Garda, Como, and Maggiore, the last-named of which is illustrated in picture 16. A map of the Alps will show that all these lakes, together with many others in this region, are long and narrow in shape. The reason for this is that their beds were originally carved out by glaciers, like the valley shown in picture 2. Hence these lakes tend to be trough-shaped, with steep sides and flat bottoms. From picture 16 it can be seen how the sides of these glacial lakes shelfe down into the water. The flat district in the background is the alluvial plain of the river Ticino, which runs into the lake at its northern end and passes out again at its southern extremity; it then flows across the plain of Northern Italy until it joins the Po.

The plain of the Po is protected from the cold northerly and north-easterly winds by the Alps, and the volume of its rivers is kept fairly uniform by the rains in winter, and the melted snow brought down in summer by the Alpine tributaries. Hence irrigation is possible, and this, together with the hot summer temperature, makes it possible even to grow rice. Other products of this district are maize, wheat, hemp, flax, vines,

~~and many~~ ^{and many} ~~new~~ ^{new} trees on which silk-worms are reared (see picture 34).

No. 19

MILAN CATHEDRAL

The body of the structure is entirely covered with statues and richly wrought sculpture, with needle-like apertures of white marble rising from every corner. It appears like some fabric of frost-work which winter traces on the window panes. It is said that the design of this building was copied from the shape of Mt. its Rosa—one of the Alpine peaks which lies in sight of the cathedral.

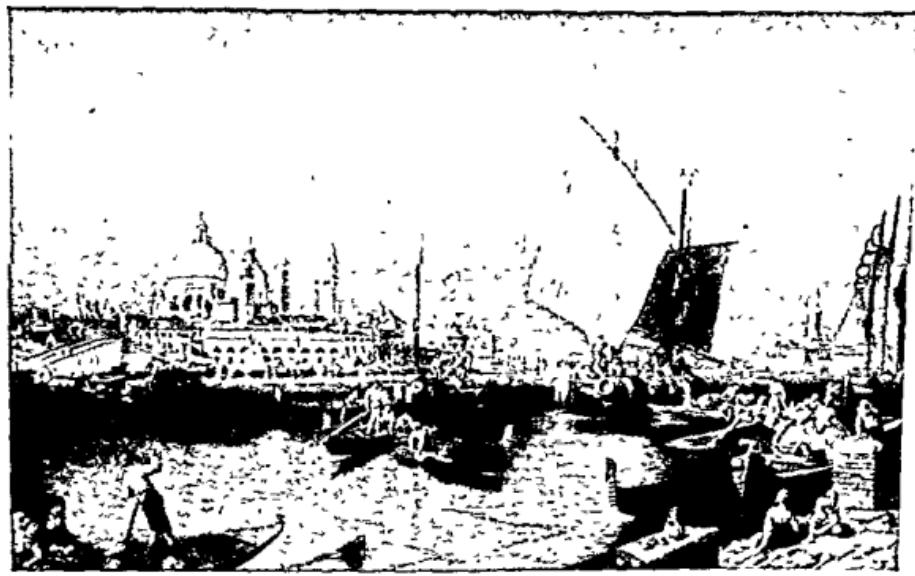
Lei in — Photo Bros



No. 16.

LAKE MAGGIORE

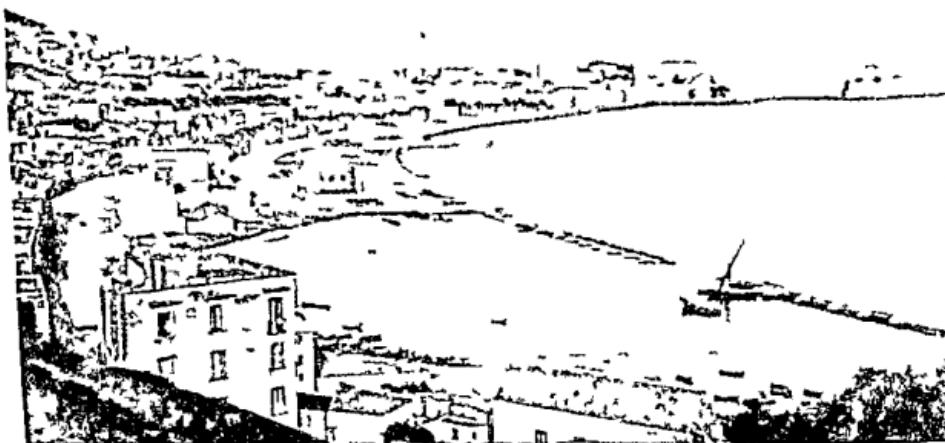
In the foreground is the church of the Madonna del Sasso, which overlooks the town of Locarno. To this church pilgrimages are made, and many tourists also visit it for the sake of the beautiful views which can be obtained from the terrace.



No. 17.

VENICE.

This picture shows Venice at the height of her prosperity in the olden days (see page 141). The domes on the left belong to the cathedral of St. Mark, the patron saint of Venice. The steeple topped tower close to it is the Campanile, or bell-tower, which fell down some years ago, but which has been rebuilt.



No 18

THE BAY OF NAPLES

The graceful curve of the bay, the dazzling blue of its waters at the night, and the beauty of the town itself set among g, over vineyards, orchards, and gardens have all contributed to making Naples one of the most picturesque cities in the world.



No 19

THE FORUM AT POMPEI

The Forum was where the Senate of Rome held its meetings and where Cicero delivered his most famous speech. In the background at the right of the picture can be seen the triumphal Arch of the Emperor Septimus Severus erected in 203 A.D. Our own Mausoleum at London was copied from it.

Photo E. A. E.

two-mile high Alps. Again, the water-meadows of this region are well adapted for rearing cattle, and dairy produce is therefore important. The cheese which we call "Gorgonzola" gets its name from a village near Milan, while "Parmesan" is made at Parma, another town in the plain of the Po. Many facts, then, have contributed to make the plain of North Italy the most important and most populous part of the peninsula.

It is here, therefore, that many flourishing towns will be found. Milan, on the S. Gothard railway route through the Alps, is the central town of the plain, and has extensive silk manufactures; it also contains the beautiful cathedral shown in picture 15. Turin, on the Mont Cenis route into France, has similar industries. Other important cities of this region are Verona, at the mouth of the Adige valley, and commanding the Brenner Pass route over the Alps; and Bologna, at the entrance to a pass over the Appenines leading to the valley of the Arno. The chief port of the district is Venice, a city originally built for defensive purposes on some marshy islands at the head of the Adriatic. In it canals take the place of the streets of an ordinary town; the entrance to the largest of these—the "Grand Canal"—can be seen in picture 17. As was pointed out on page 14, Venice had an extensive trade in the Mediterranean in the Middle Ages, but its importance to-day, although fostered by the Suez Canal, is being challenged by its old rival Genoa. The latter port has a magnificent harbour, and railway connection with the North Italian Plain through the Ligurian Mountains. This railway forms part of a through-route from Central Europe to the Mediterranean via Milan and the S. Gothard Tunnel. Venice has similar connection with Eastern Germany over the Brenner Pass.

Just as the Alps protect the North Italian Plain, so the Appenines protect the western coastal plains from the easterly winds. The rainfall is not very heavy, but is greater on the west than on the east (refer to page 5); as is usual in the Mediterranean region, the bulk of it falls in the winter. The most important of the western coastal regions are those at the mouth of the Arno, and round the Bay of Naples. In the former of these, which comprises part of the province of Tuscany, a variety of wheat is grown, the straw of which is especially suited for plaiting; this has made Leghorn the centre of the straw-hat industry. Florence, higher up the Arno, is to-day chiefly famous for its art treasures. In the Middle Ages this city was a powerful and wealthy republic; its nobles showed their good taste by patronising painters and sculptors, and thus some of the most famous artists who have ever lived were attracted to the city. Among them were Michael Angelo and Leonardo da Vinci, while Dante, one of the world's greatest poets, was also a Florentine. Other important towns of Tuscany are Carrara, where white marble is quarried from the Appenines,

and Lucca, where olives are grown and oil manufactured. The district round the beautiful Bay of Naples, shown in picture 18, is extremely fertile since the soil is volcanic. This is due to the presence in the neighbourhood of Vesuvius. Originally this mountain was quite peaceful; but in 79 A.D. a terrible eruption took place, which completely buried the adjacent towns of Herculaneum and Pompeii (see picture 20). Even in our day Vesuvius occasionally becomes eruptive, and causes great destruction and loss of life.

Midway between the Arno and the Bay of Naples lies the mouth of the Tiber, flanked on either side by unhealthy marshes; about 20 miles up this river is Rome, the chief city in Italy. Its importance to-day is more historical than geographical; but formerly its situation on hilly ground in the middle of a marsh, its command of a bridge, and of several roads leading in every direction, and its position just so far from the sea as to be safe from pirates yet not inaccessible for the ships of the period all led to its becoming the mother-city of one of the most important empires of olden times. It still contains many ruins dating from the classical period, when Rome was the mistress of an empire extending from Britain to Egypt. Among them are those surrounding the Forum or assembly-place, shown in picture 19, and the huge open-air amphitheatre called the Colosseum, which is illustrated on the opposite page. At present the Tiber is silted up and navigable only for small boats, so that Rome is now of small commercial importance. She is, however, famous as being the headquarters of the Roman Catholic Church, and the centre from which Christianity spread over Western Europe. The cathedral of Rome is S. Peter's, a photograph of which is reproduced in picture 22; it is the largest and one of the most beautiful churches in Christendom, and it furnished a model for our own S. Paul's in London. Adjoining S. Peter's is the Vatican—the palace in which the Pope lives.

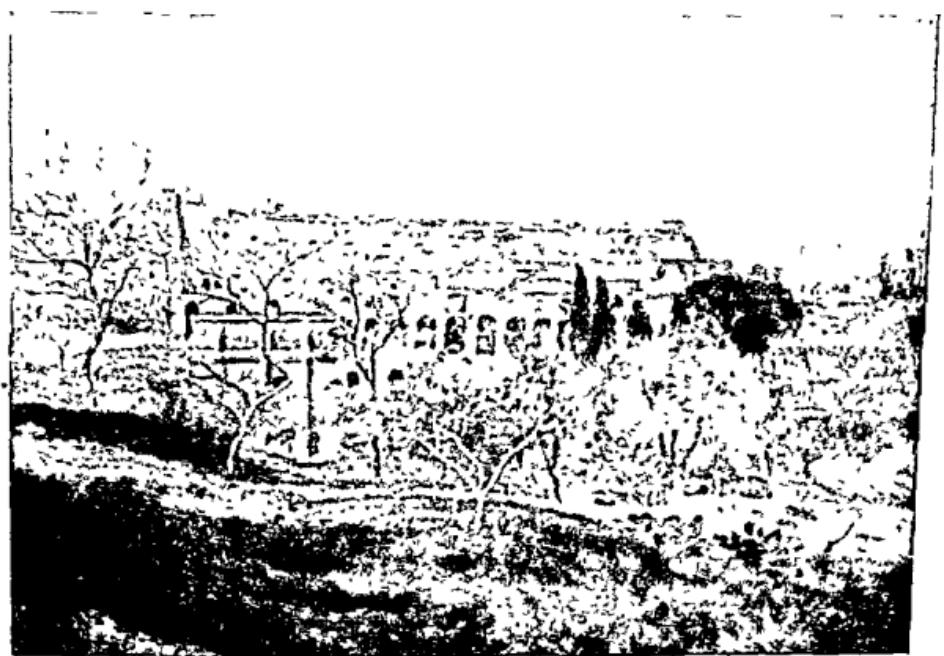
The eastern coast of Italy, south of the Northern Plain, is deficient in good harbours and important towns. Most of the district is given over to sheep-rearing, and the growing of a variety of wheat from which macaroni is made. At Brindisi, the terminus of the railway connecting Western Europe with the Suez Canal route to the East, a harbour has been built for embarking and landing passengers and mails; but it is of little importance for trade. The island of Sicily is fertile, and produces oranges, lemons, wine, and wheat, which are exported chiefly from Palermo and Messina. Catania, on the east coast, is the outlet for sulphur, which is obtained in the neighbourhood of the volcanic Mount Etna. Sardinia is also an Italian possession, and has deposits of zinc and iron which are exported from Cagliari.



No. 20.

POMPEII AND VESUVIUS.

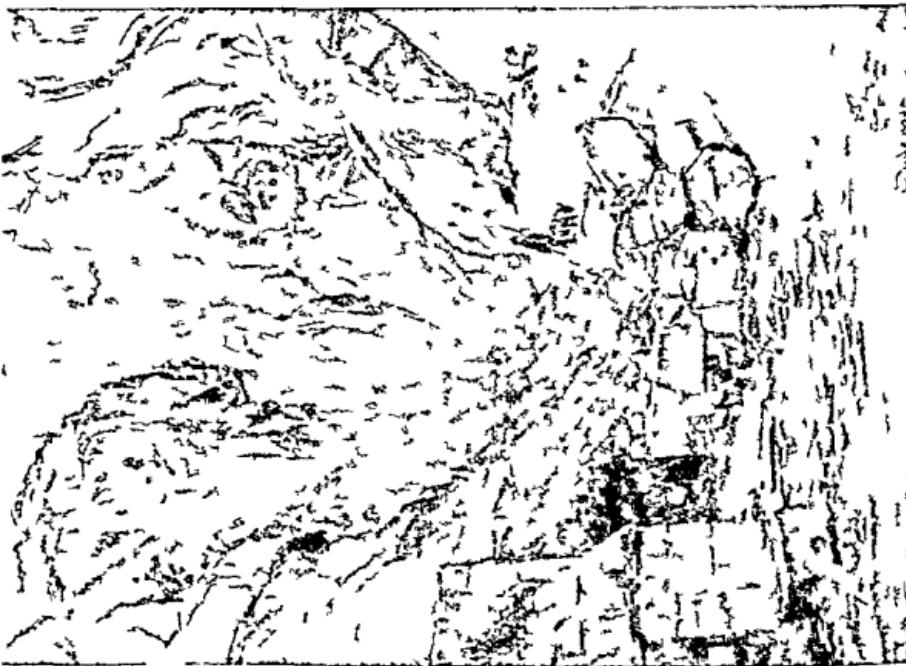
On the left can be seen a part of the town which has been uncovered in recent years; other parts still lie buried under the ash poured out by Mount Vesuvius, which can be seen in the background.



No. 21.

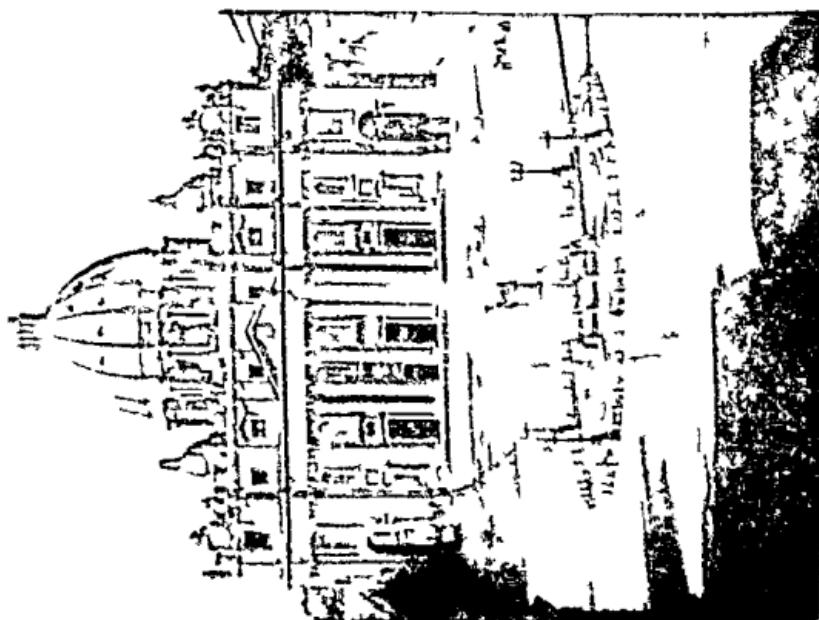
THE COLOSSEUM AT ROME.

This enormous building was originally used for the degrading gladiatorial shows which were very popular during the days of the Roman Empire. Here also many early Christian martyrs were killed by lions to provide a spectacle for the people of Rome.



1. FIRST SCENE

No 03
The house like a fort of m. in c. It is of wood, all d. and
p. red to a em. In rock has v. ha ha e o on the
wind now has any p. o wou s v. All d seems said my
ha e h a m p e r o t e r



2. LETTER AT RO

The building is a large, ornate structure, possibly a cathedral or church, with a prominent dome and multiple towers. The building is set against a dark, cloudy sky. In the foreground, there are some trees and a dark, possibly paved area.

(c) The Balkan Peninsula.

Under this heading we shall confine ourselves to the region south of the Danube and its tributary the Sava, and deal with Danubeland at a later stage (see page 59). As the map shows, the Balkan Peninsula consists chiefly of a mass of mountains. All along the western side stretch the Illyrian and Pindus ranges, which are themselves linked by the Julian Alps to the main mountain mass of the Alps. These western coastal regions are chiefly composed of porous limestone, and, as is usual in such districts, there are many "swallows" underground rivers, caves, and streams flowing at the bottom of deep gorges. This type of scenery is illustrated in picture 23. There is a region of this kind, near Trieste at the north east corner of the Adriatic, which is called the "Karst", so that this term is often used by geographers to describe similar districts elsewhere. The western coast of the Balkan Peninsula is much indented and fringed with islands, but the difficulty of communications has hindered the growth of large ports.

To the east of the Illyrian Pindus system, and south of the lower Danube basin, are the Balkan Mountains, and between them and the western ranges lie three mountainous plateaux—the Serbrian, drained by the Morava, a tributary of the Danube, the Macedonian, drained by the Vardar, and the Thracian which is continued in the Rhodope range, and is drained by the Struma, the Isker, and the Upper Maritza. In spite of this seemingly complicated mountain system (which, however, will appear quite simple if an atlas is used), there are several through routes which make use of the river-valleys. For instance, that followed by the Orient Express line from Vienna ascends the Morava valley to Nish, thence up the valley of the Nishava to Sofia, and thence down the Maritza past Adrianople and across the Plain of Turkey to Constantinople.

The broken surface of the peninsula has fostered the growth of numerous small communities among which, as among the Scottish clans of old, there is often much unrest which hinders progress. On the western coast is the recently created state of Yugo Slavia, which comprises Serbia and Montenegro, as well as Bosnia and Herzegovina which used to belong to Austria. South west of this country lies the state of Albania which was set up after the Balkan War of 1913, but at present its government is under the control of the Italians. South of the lower Danube lies the principality of Bulgaria. The peninsula between the Black Sea and the Sea of Marmora is the only territory in Europe which still belongs to Turkey, while the southern part of the Balkan Peninsula and a district along the lower course of the river Struma are in the hands of Greece.

The climate of the peninsula is one of great extremes notwithstanding its latitude. In summer its temperature is as warm as in Italy, but in



No 24

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TYP 11 12

winter the region is exposed to cold north east landwinds from Russia, which bring heavy snowfalls and often freeze the Danube. A large part of the peninsula is none the less available for agriculture, maize and wheat are grown in Bulgaria on the northern and exposed side of the Balkans, while under their sheltered southern aspect, in Rumelia, tobacco is raised, here also roses are extensively cultivated, and a perfume called attar of roses distilled from them. In the beech forests of the Serbian highlands large numbers of pigs are reared, and orchards, chiefly of plum trees, are also found in this district.

The bare limestone ridges of the western sea board afford a scanty pasture for sheep and mohair goats, while in many of the milder parts of the peninsula the mulberry tree is cultivated for the sake of silk worms. In Greece, currants, olives, and figs are produced. The Balkan Peninsula is well off for minerals, but the difficulty of communications has tended to hamper the development of such as it does possess, coal, iron, and lead are found in Serbia, and copper in the Rhodope Mountains. In Greece the minerals lie near the sea, and are thus more easily handled, iron, lead, and zinc ores are important exports, as well as marble, of which the temples of the ancient Greeks were built (see picture 25).

The two most useful ports of the whole peninsula are Constantinople and Athens. Each possesses a fine natural harbour, though of the two Constantinople has the greater commercial and strategic advantages. As picture 24 shows, it is situated on a hilly peninsula between an inlet of the Bosphorus at its southern end, called the Golden Horn, and the Sea of Marmora, on the landward side it is protected by a line of lakes and swamps. Its commerce has suffered owing to bad government, but its position at the mouth of the Black Sea is very important and its future is a matter of much concern to the great powers of Europe. Athens, the capital of Greece, is famous for the ruins of its ancient city, this was situated on and around a steep crag called the Acropolis, which was crowned by the temple shown in picture 25. The port of Athens is the Piraeus, and the modern city lies in the plain between it and the Acropolis.

Other seaports are Sironica, the terminus of a railway up the Morava and down the Vardar valleys, which is part of the shortest route between England and Egypt, and Varna, on the Black Sea, the outlet for the cereals of the Bulgarian Plain. The chief inland towns of the peninsula are Adrianople, which commands the route up the Tunja valley and over the Shipka Pass into the Danube Plain, Philippopolis, the capital of Eastern Rumelia, Sofia, the capital of Bulgaria, situated at the focus of routes leading down the valleys of the Morava, Isker, Maritsa, and Struma, Nish, the junction of railways from Constantinople and Sironica, and Belgrade, the capital of Serbia, and an important fortress at the

confluence of the Danube and the Save. All these towns are on the Orient Express route from Vienna to Constantinople.

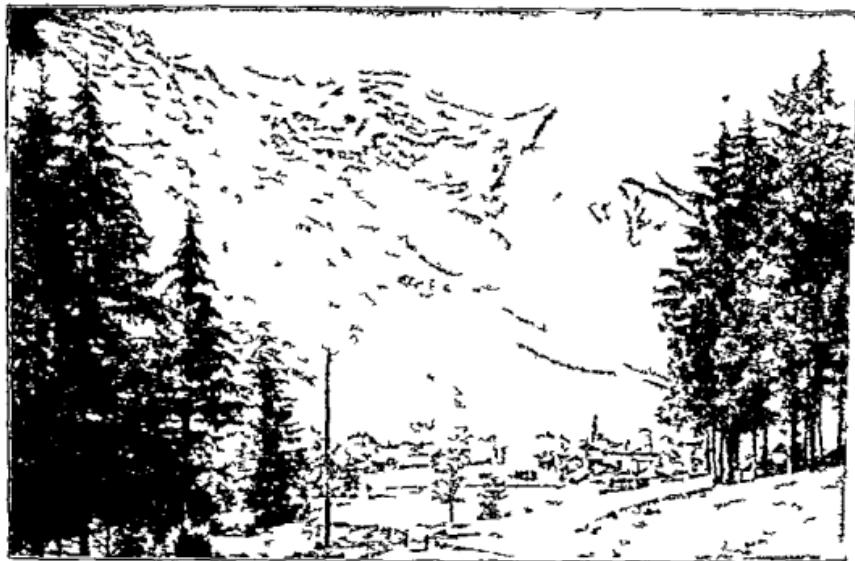
II.—CENTRAL AND NORTH-WEST EUROPE.

PHYSICALLY this region may be roughly divided into three parts: in the south is a mass of highlands of which the Alps form the core; in the north are the Scandinavian Mountains, and between these is an extensive lowland plain which has been partially invaded by the shallow English Channel, North and Baltic Seas. As was pointed out on page 8, these shallow seas provide with useful estuaries the many slow-flowing rivers which traverse the Central European Plain. Hence the rivers of this plain have always been important waterways, and this was specially the case in the old days when most of this area was covered with forest.

(a) The Alpine Region.

This may be conveniently divided into an eastern and a western part, by a line drawn from Lake Constance to Lake Como. The natural centre of the former region is Mont S. Gothard, from which several rivers radiate. Westward flows the Rhone, between the parallel ranges of the Bernese and Pennine Alps, the former containing the Finsteraarhorn, Jungfrau, and Monch peaks, and the latter Monte Rosa, the Matterhorn, and Mont Blanc; the last-named is illustrated in picture 26. Eastward from Mont S. Gothard flows the Rhine, and northward the Reuss, which eventually becomes its tributary; southward runs the Ticino which, after passing through Lake Maggiore (picture 16), joins the Po. The eastern division of the Alps is traversed from south-west to north-east by the Inn, and from north to south by the Adige. The easiest communication between the valleys of these two rivers is over the low Brenner Pass. Farther east four parallel valleys can be traced, running from east to west; they are drained by four tributaries of the Danube—the Ems, the Mur, the Drave, and the Save. In the angle between the Adige and the Drave are the Dolomite Alps, famous for their wild scenery (see picture 5).

An examination of the map will show that many of the Alpine rivers rise near one another, and this helps communications along their valleys and over the water-parting which separates them. Many of the passes through the Alps are of this character—e.g., the Furka, S. Gothard (see picture 30), Splügen, Breuer, Great S. Bernard, and Cenis Passes. In picture 27 there is a view of the Simplon Pass, which leads from the Rhone valley at Brig to the head of the Toce valley. The roads over several of these passes have recently been supplemented by tunnels beneath them, and these tunnels are among the longest in the world. For example,



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No. 9

MONT BLANC.

The village at the foot of Mont Blanc is Chamonix, from which ascents are usually made. It contains a large number of hotels, which are usually crowded with visitors in the summer-time. There is also an office where an one who wishes to do mountain-climbing can hire an experienced guide. Mont Blanc reaches a height of nearly three miles above sea-level.



Photo, Prentiss & Co.

No. 10

THE SIMPLON PASS.

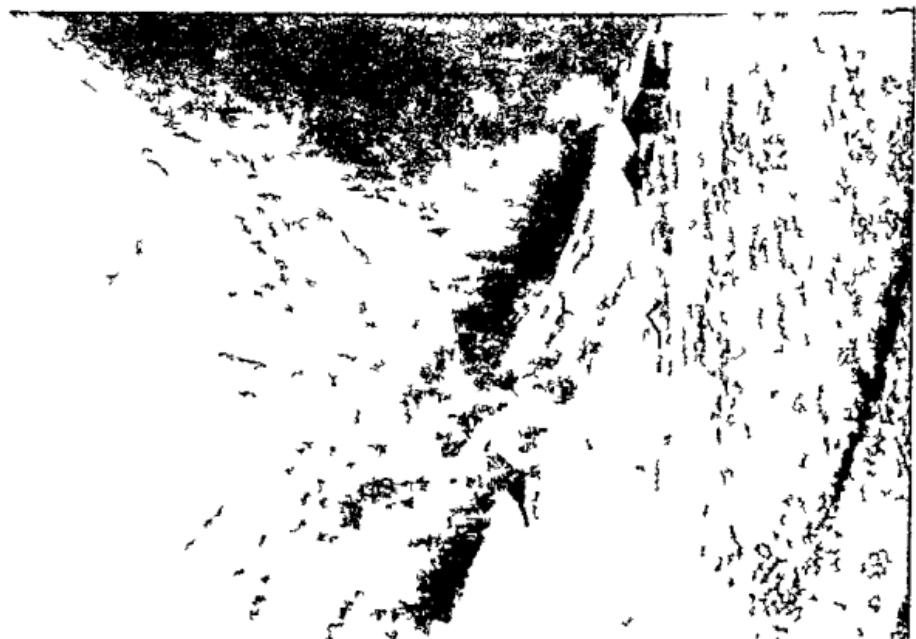
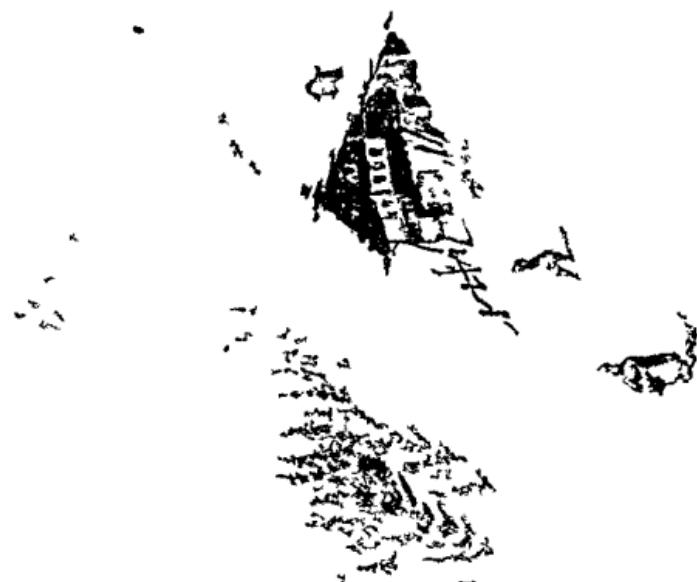
Glaciers are not the only means of relieving the pressure of the snow upon mountain-sides (refer to picture 1). Sometimes huge masses of snow become detached and slide down the mountain-side in the form of an avalanche, carrying everything before them. One can be seen in the picture: a tunnel has been dug through a wall of ice to keep the road along the pass open.

AN ALP IN WINTER

No 29
The m i co f n
el by the s n
omp bu of wood
a k y a
h k o h n g b
s o k e p off he s n

AN ALP IN SPRING

No 30
The m i co f n
el by the s n
omp bu of wood
a k y a
h k o h n g b
s o k e p off he s n



that under the Cenis Pass is $7\frac{1}{2}$ miles long, and the S. Gothard tunnel $9\frac{1}{4}$ miles long. In 1906 a tunnel was completed under the Simplon Pass, its length is $12\frac{1}{2}$ miles, and it takes twenty minutes or more for an express train to pass through it. Electric locomotives are used in order to keep the atmosphere free from smoke. In spite of the use of these tunnels, the railways over the Alpine passes have many steep gradients, and are in places forced to resort to a spiral track, such as is illustrated in picture 30, in order to go from one level to another.

Owing to its great height the Alpine region receives the Atlantic winds, and thus has a rainfall comparable with that of the western coast of the British Isles (see page 5). The vegetation obviously varies with the altitude. The mountain tops are barren snowfields, from which glaciers often descend into the heads of the valleys below (see picture 1), but, on the lower slopes, mosses and Alpine flowers, as for instance, the edelweiss, grow, and these gradually give place to pine forests, such as those shown in picture 28. In the upland valleys, below the forests, are meadows covered with snow in winter, as may be gathered from picture 29, but bright with innumerable flowers in spring and summer (see picture 28). On these meadows numbers of cattle are reared for dairying purposes. It is to these summer pastures that the name "Alp" should be given rather than to the mountain peaks themselves, though this distinction is rarely observed by us. In the lower and warmer valleys—especially those with a south aspect—vineyards and orchards are to be found.

The western end of the Alps, containing Mont Blanc, is in France, and the eastern end partly in Austria and partly in Italy. The centre comprises the inland country of Switzerland which also includes the plateau lying between the north west Alps and the Jura. Much of this plateau is given over to agriculture, grapes are grown on the southern slopes of the Jura, and flax and hemp in the open plain, dairy industries are also found here, as well as in the Alpine valleys. Many of the towns have manufactures, and the presence of water power, furnished by mountain torrents, helps to compensate for the lack of coal. Watches and musical-boxes are made at Geneva, Neuchatel, Le Locle, and Chaux de Fonds, Bâle and Zürich have silk industries, while S. Gall, Appenzell, and Zurich also make cotton goods. The capital of the country, where the Federal Parliament meets is Berne, but because Switzerland is so mountainous it has been found rather difficult to set up a rigid central government, and the separate "cantons" or states still retain their local governments. Other important towns are Lucerne, commanding the S. Gothard through-route from the Rhine at Bâle to Italy, and Geneva, guarding the gateway

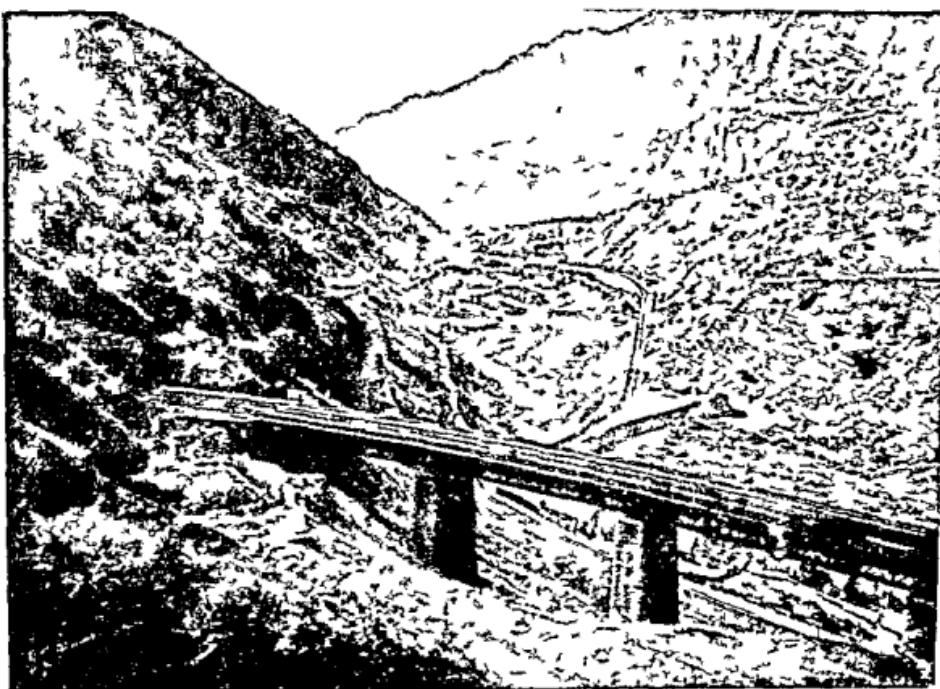
from France into Switzerland, either *via* Lausanne and the Broye valley into the north-western plateau, or up the Rhone valley to the S. Gothard.

The beautiful scenery of the Alps, so well illustrated in pictures 1, 5, 16, 26, 27, 28, 29 and 30, attracts large numbers of tourists every year to Switzerland; and this renders hotel-keeping an important industry, as well as wood-carving and the manufacture of souvenirs of various kinds.

(b) France.

France is bounded on three sides by the sea—the English Channel, Bay of Biscay, and Mediterranean; to it flow navigable rivers—*e.g.*, the Garonne, Loire, Seine, and Rhone—which are well supplied with tributaries, and have been artificially connected in many places by canals. By land France is separated from Spain by the Pyrenees, from Italy by the Alps, from Switzerland by the Jura, and from Germany by the Rhine and the Ardennes; but all these barriers are more or less easily crossed. Spain is accessible round either extremity of the Pyrenees, though not elsewhere; Italy, along the Riviera or over the Cenis Pass (now supplanted by the Mont Cenis tunnel); Switzerland, up the Rhone valley to Geneva, or through the Gate of Burgundy to Basle; Germany, across the Rhine or down the valley of the Moselle. Between France and Belgium the frontier is merely artificial, and is crossed by innumerable roads, railways, rivers and canals. All these easy communications, together with the mild climate and the fertility of the lowland plain fronting the Bay of Biscay and the English Channel, have given France important commercial advantages.

South and east of this wide lowland plain is a plateau of old rock, which, in the centre, has been in places overlaid by volcanic action. The general slope of these highlands is towards the west or north-west, as is shown by the general direction of the rivers which traverse it. The plateau descends steeply eastwards into the plain of the Saone and Rhone, which, like the Ebro in Spain, flow in a contrary direction to the general lie of the country. At the north-west corner of France is the hilly peninsula of Brittany, which, owing to its oceanic climate, is liable to heavy rain and frequent mists, while its rocky soil renders it unproductive; its inhabitants are chiefly concerned in fishing. Close to where Brittany adjoins the neighbouring province of Normandy, at the south of the Cotentin Peninsula, lies the rocky islet illustrated in picture 32. It is known as Mont S. Michel, and is in many ways similar to S. Michael's Mount near Penzance in Cornwall. The island was strongly fortified in the Middle Ages, and ruled over by an abbot who was a person of much local importance; in the fifteenth century he even possessed the neighbouring islands of Jersey and Guernsey, and the Abbey of the Cornish S. Michael's Mount was an offshoot of Mont S. Michel.



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No. 30

S. GOTTHARD PASS AND RAILWAY

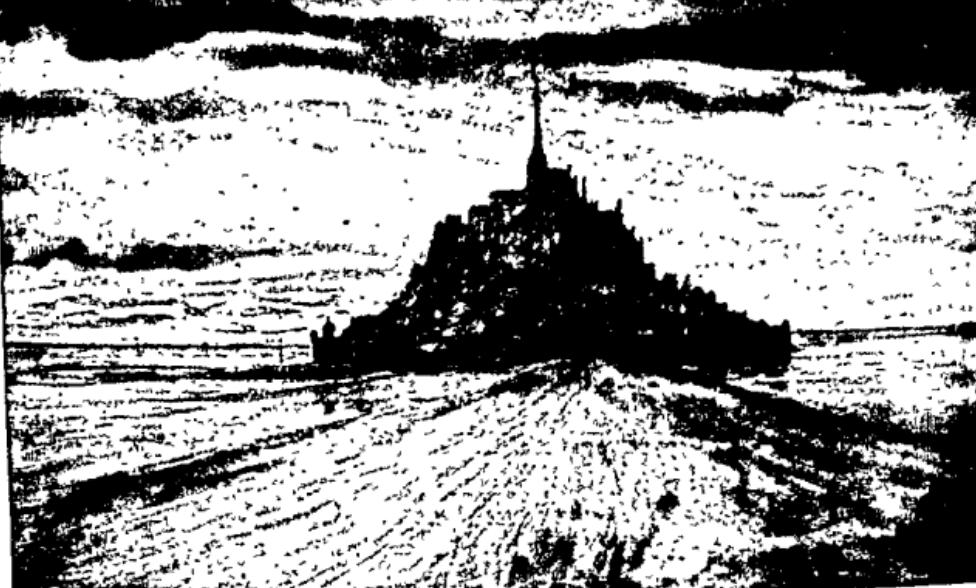
The railway in the picture passes through two small tunnels in order to climb the mountain slope. Three different levels can thus be distinguished, but the railway abounds in sharp curves and steep gradients which make travel difficult and tedious.



No. 31

THE LANDS

In order now to traverse the meadows and marshes, the inhabitants of the Lands have adopted the custom of walking on wide, flat, low, and of supporting themselves on a pole which serves as a walking-stick.



No. 32

MONTE S. MICHAEL.

"This magnificent abbey-palace-citadel church remains unique, no less in its situation than in its stupendous strength, in its intrinsic variety than in its architectural beauty. It was accessible only over the sands at low tide. The island is now joined to the mainland by a causeway, but formerly



No. 33

AN OLIVE MILL.

"The oil-mills are of course placed where a little stream of water can be conducted from some neighbouring torrent to turn the wheel, and as the production of oil takes place during the winter and early spring, there is usually a sufficient supply. A large amount of oil is made nowadays at Marseilles from oil seeds imported from India and China."

The plain of France, owing to its great width, is easily penetrated, even far inland, by the Atlantic winds; it thus enjoys a good rainfall. In its northern part, apples, wheat, and sugar-beet are raised, and there are extensive dairying industries, and in some parts—*e.g.* Champagne—it is even possible to grow vines. In the basins of the Loire and the Garonne wheat and wine are produced, and in the district round Toulouse tobacco can be grown. Along the coast of the Bay of Biscay, south of Bordeaux, is a flat and sandy plain called the “landes.” It is planted with pine trees, from which much turpentine is obtained; and in the clearings herds of all kinds are fed (see picture 31). In the sheltered Rhone valley many varieties of grape are produced in abundance, as well as olives and maize, and mulberry trees for silk-worms. The silk-worm is really the caterpillar of a moth; it feeds on the leaves of the mulberry tree (see picture 34). When it is full-grown it spins a cocoon, such as is shown in the inset to the picture. From this cocoon the silk is procured; the chrysalis inside is first killed by exposing the cocoon to great heat, and the silk thread is then reeled off. After being twisted into thicker yarn, it is cleaned and dyed and woven into fabrics or ribbon.

Considering her size (about three and a half times that of England and Wales), France is badly off for minerals. The most important coal-fields are on the border of Belgium, but there are also deposits on the western brink of the Central Plateau at S. Etienne and Creuzot. Iron is obtained in the neighbourhood of this last-named town, as well as in the valley of the Moselle near Nancy. As a result of the Great War the provinces of Alsace and Lorraine were restored to France. They are rich in minerals such as iron and potash, and contain the important manufacturing towns of Strasbourg, Mulhouse and Colmar. France is also to have the coal fields of the Saar basin, north-west of Lorraine, as a compensation for the destruction of the coal-mines of Northern France by the Germans. The district will be governed by a Commission appointed by the League of Nations, and after fifteen years its inhabitants will vote to decide the political future of their country. The most important manufacturing district of France is on the Belgian frontier; this is due not only to the presence of coal, but also to the flax and wool of the district, and the nearness of the sea whence cotton and extra supplies of wool from abroad are imported at Dunkirk and Le Havre, as well as at Antwerp in Belgium. The chief industrial towns of this region are Roubaix, Tourcoing, Rheims, and Amiens, which manufacture woollens; and Lille and Cambrai, which devote themselves chiefly to linens. Cotton goods are made at Lille, S. Quentin, and Rouen, and also in several towns on the western side of the Vosges. The silk produced in the

Rhone valley is manufactured at Lyons, and also to a lesser extent at Nimes and Avignon; and S. Etienne, in addition to its coal-mines, has extensive ribbon manufactures.

In the centre of the fertile northern plain of France lies Paris, the capital of the country. A large number of routes converge upon this city, and to this its importance is largely due; chief of them are that from Belgium down the valley of the Oise; that from Germany *via* Strasbourg through the Lorraine Gap and along the Marne; that through the Gate of Burgundy, which at Dijon joins the Rhone-Saone valley route from Marseilles, and thence follows the valleys of the Yonne and the Seine; that from Spain *via* Bordeaux, Tours, the Loire valley, and Orleans; and finally the river-way up the Seine from the port of Le Havre. All this makes Paris the most important commercial centre in France; but lack of coal in its neighbourhood hampers the rise of large industries. It therefore confines itself to the manufacture of articles of luxury, such as jewellery, perfumes, furniture, porcelain, and gloves. Some idea of Paris may be gathered from picture 85. It contains many fine parks and gardens, with magnificent churches and public buildings. The Seine is spanned, as the picture shows, by numerous bridges, and the city itself is intersected by fine broad streets called "boulevards," which are bordered with trees. The original city of Paris was built for defensive purposes on an island in the middle of the Seine. On this island stands the cathedral of Notre-Dame, the twin towers of which can be distinguished in the picture; there is also a small drawing of this cathedral on the title-page of this book.

The chief port of France is Marseilles, situated a little to the east of the Rhone delta, where it avoids the silt which is brought down by the river and carried westward by currents (*cf.* the position of Alexandria in Egypt). Its importance has increased since the cutting of the Suez Canal, but it is being rivalled by Genoa (see page 21). Among the industries of Marseilles is the making of soap; the necessary oil is obtained largely from olives grown locally, and it is extracted in picturesque

ills, such as can be seen in picture 83. The seaport next in importance

Marseilles is Le Havre, at the mouth of the Seine, though this again is being rivalled by Dunkirk, on the North Sea, which has for its hinterland the greatest industrial region in France. The chief exports of Bordeaux and Nantes, on the estuaries of the Garonne and the Loire, are the agricultural products of the basins of these two rivers and their tributaries. Calais, Boulogne, and Dieppe are merely packet-stations communicating with England; while Cherbourg on the English Channel, Brest and Lorient on the Bay of Biscay, and Toulon near Marseilles, are the headquarters of the French navy.

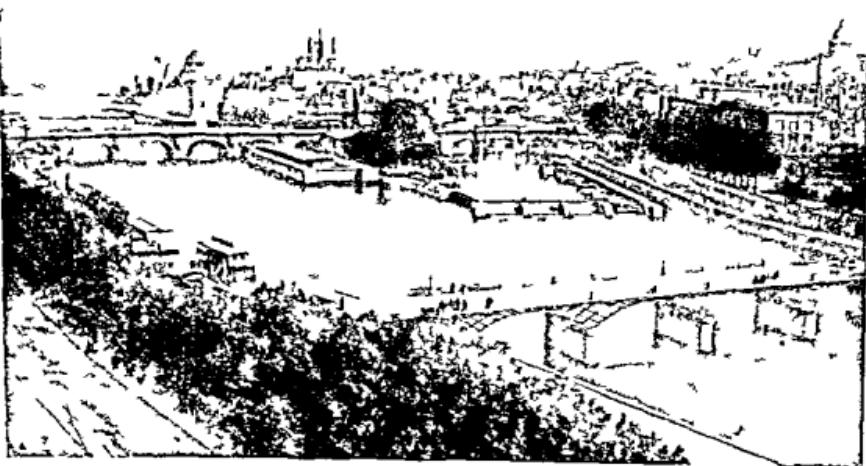


Photo, Picture Post Agency

No. 34

MULBERRY TREE AND SILK WORMS

In the inset can be seen the male moth (on the left) and the female (on the right) before the caterpillar when just beginning to spin the cocoon which can be seen close by in its completed state. At the bottom of the inset is the chrysalis of the silk worm moth.



No. 35

PARIS

This picture clearly shows the island (usually called the Cité) on which Paris was originally built. On the left of the great men of France are buried, this corresponds to Westminster Abbey with us.



Vo 36

Accio

The streets are lined with trees and shrubs, and the spring rains have washed the soil.



to 3

ADDITIONAL CANAL AND VILLAGE

If ω is constant and k is $\frac{1}{2}$ then ϕ will be a wave in g and ω will be a wave in ϕ . It is standard to reduce ϕ to a 3 -wave. If ω is $\frac{1}{2}$ then ϕ is $\frac{1}{2}$ -wave.

To France belongs the mountainous island of Corsica. A view of its chief town, Ajaccio, where Napoleon was born, is given in picture 36. In this island there stills survives the custom of the "vendetta"—i.e., taking private revenge instead of having recourse to the law, as is usual in civilised countries. If a Corsican quarrels with his neighbour, he lies in wait for him and shoots him, if he can; then the relatives of the dead man seek to avenge his death by shooting the murderer, or, failing that, some near relative of his. This process goes on indefinitely, and many deaths are involved; this is perhaps the reason why the women in picture 36 are dressed in dark clothes, instead of wearing the gay colours which are common in the Mediterranean region, and in which southern nations delight. The French Government is doing its best to put down the vendetta; but although much improvement has been made, yet even to-day this barbaric custom still exists.

(c) The Low Countries.

The name of "Low Countries" or "Netherlands" is often given to Holland and Belgium, which front the North Sea on the north-west, and have artificial boundaries separating them from France on the south and Germany on the east. In the extreme south-east of Belgium is the tableland of the Ardennes, which slopes down into the low and level plain which, in some places in the north and west, lies below sea-level. The scenery of the Ardennes district, as can be gathered from picture 6, is made very beautiful by forests and rivers. The flatness of the coastal plain is responsible for the existence of slow-flowing rivers, some of which rise outside Holland and Belgium, though the estuaries, and in some cases the greater part of the streams themselves, lie within the Low Countries; chief of them are the Scheldt, the Meuse, and the delta of the Rhine. These rivers are connected by innumerable canals, and thus in the Netherlands waterways are used to an extent unknown in other parts of Europe; in Holland, the length of the waterways is almost twice that of the railways. One of the canals is illustrated in picture 37. More than a third of Holland also is below the level of the sea, and the water is kept back by means of dykes; the land so reclaimed is drained by pumps, which are usually driven by windmills (refer to picture 38). No part of the plain of the Low Countries is high enough to receive a heavy rainfall, and it is so exposed that the winters are severe. Much of it, however, is given up to agriculture and pasturage; in Belgium, wheat, rye, oats, and sugar-beet are grown, as well as flax in the basin of the Lys. Sheep are pastured on the highlands of the Ardennes. The water-meadows of Holland yield rich pasture for cattle, and hence this

country has large dairying industries, and exports butter and cheese, among the crops raised are rye, from which a spirit called "Hollands" is distilled, and flax, of which "brown Holland" is made. Sugar-beet and potatoes are grown in the drier soil of eastern Holland, while round Haarlem there are hundreds of acres of tulips and other bulbs, such as are illustrated in picture 39. In the seventeenth century tulips became extraordinarily fashionable, and there was a widespread tulip "craze," to which the name of "tulipomania" has been given. Attempts were made to produce tulips of all kinds of rare colours, and enormous sums were paid for them.

There is an important coal field in the south of Belgium near Mons and Charleroi (see page 35), while close at hand, near Namur and Liège, are deposits of iron. Zinc and lead are also found in this neighbourhood. The whole region has, therefore, developed important manufacturing industries, based on this mineral wealth and on the local supplies of raw material, though additional supplies have nowadays to be imported from abroad. The flax of the Lys basin is woven into linen at Tournai and Courtrai, the wool of the Ardennes is manufactured at Verviers, while Ghent imports and spins cotton, and Brussels and Mechlin are famous for their lace. In addition to the textile industries of Belgium, iron is worked at Liège, and the not very abundant local supplies of ore are supplemented by those brought down the Ourthe valley from Luxembourg. Glass, chemicals, and pottery are also manufactured in the south east of Belgium. The manufacturing districts of Belgium were laid waste during the Great War, but they are now being restored. Holland has practically no mineral wealth, save some clay round Delft, which has given rise to the pottery industry there, she has therefore to rely chiefly on her agriculture and dairying, although linen is manufactured from locally grown flax at Tilburg and Utrecht. Amsterdam is the most important city in Europe for diamond cutting, and it has also a large trade in coffee imported from the Dutch East Indies.

The Dutch are still an important maritime power. In the seventeenth century they succeeded in getting into their hands the trade with the East, which the Portuguese had acquired owing to their discovery of the Cape of Good Hope route to South Eastern Asia (see page 14). They used to bring the spices, silks, gems, etc., of the East and distribute them to Central Europe by way of the Rhine, just as in the thirteenth, fourteenth, and fifteenth centuries Venice and Genoa had imported these goods into the same region over the Alpine passes. The Dutch had eventually to give place to the British in their command of the sea and its trade, but even to-day they possess many of the East Indian Islands, which are one of the most important sources of spices and similar goods.



No. 33.

A TYPICAL DUTCH SCENE.

"When land has to be reclaimed from the sea, it is first enclosed with a dyke to prevent any water flowing into it. On the edge of this dyke windmills are erected, each of which works a pump. As the mills draw up the water it is discharged into a canal, which takes it to the sea."

The Low Countries are well supplied with ports, though many of them are liable to be silted up by sediment brought down by the rivers, and have been kept open only by dredging or the cutting of canals. Antwerp, on the Scheldt, is strongly fortified, and has railway connection with the manufacturing district of the Meuse, as well as a complicated system of inland waterways. Amsterdam, on the shallow Zuider Zee, has direct communication by ship-canal with the North Sea at IJmuiden; Rotterdam has also been connected with the sea by canal, since the mouth of the Rhine on which it stands has been silted up. Ostend and Zeebrugge (both connected by canal with Bruges and Ghent), Flushing, and the Hook of Holland near Rotterdam are all important packet-stations for passenger traffic.

Although Holland and Belgium are geographically connected, and may therefore be conveniently treated together, yet, politically, they are distinct. They both form buffer-states between France and Germany, and this is shown in the mixture of peoples and religions—Protestant and Teutonic Dutch or Flemish in Holland and Northern Belgium, and French-speaking Roman Catholics in South Belgium. The position of Belgium, on the route from Paris to Berlin *via* Cologne, is also illustrated by the numerous battles which all through European history have been fought in this region. It was here, of course, that part of the "western front" lay in the Great War.

In the extreme south-east of Belgium lies the independent Grand Duchy of Luxembourg. It has very productive deposits of iron-ore, some of which is smelted locally, and some sent to Liège in Belgium (see page 40), or the Westphalian iron-working district of Germany (see page 45).

(d) Germany.

This country is divided almost equally into a lowland area in the north, and in the south a more elevated district composed of hills and tablelands. The frontiers separating Germany from Holland and Poland are merely artificial lines; and the boundary between it and France has been described on page 32. In the south, Germany is separated from Switzerland by Lake Constance and part of the upper Rhine, and from Austria and Czechoslovakia by a whole series of mountain ranges—the Eastern Alps, the Bohmer Wald (*i.e.*, Bohemian Forest), and the Erz and Riesen Gebirge (*i.e.*, Ore and Giant Mountains). At the angle made by the Bohmer Wald and the Erz Gebirge are the Fichtel Gebirge (*i.e.*, Pine Mountains), from which the Thuringian Forest Mountains run north-westwards and the German Jura south-westwards. West of the latter is the Black Forest region (illustrated in picture 40), which is separated from the Vosges by the valley of the middle Rhine. The Rhine itself rises on the eastern side of Mont S. Gothard (see page 28). After flowing through the Lake of Constance it passes over the famous falls at Schaffhausen, which are shown in picture 41. After passing these falls, the Rhine flows rapidly westwards as far as the Swiss town of Basle; there it turns northwards and enters the valley of the middle Rhine, mentioned above. This valley has been produced by the formation of two parallel cracks in the earth's surface, between which a long strip of land has slipped down below the level of the surrounding country; along the bottom of the trench so formed the Rhine now flows, with a fertile plain on either bank. A valley sunk in a plateau in this way is called by geographers a "rift-valley," and there are many such in various parts of the world—*e.g.*, the Jordan and Dead Sea valley, and the Central Plain of Scotland. At the northern end of its rift-valley the Rhine has cut the deep gorge, which is shown in picture 42, through a plateau which stretches northwards and westwards, and slopes gradually downwards into the Great Plain of Northern Germany, being broken only by the Harz Mountains. On the steep sides of the Rhine rift-valley and of the gorge at its northern end, there are innumerable vineyards. The sloping banks have been cut into terraces, on which the vines grow; some of these terraces can just be distinguished in the picture, on the far side of the river. By means of them the plants are sheltered and can get the full advantage of the sun's rays, while at the same time any excess of moisture is drained away from the roots. Thus the whole middle Rhine district is famous for its wines, many of which take their names from towns or villages in this region. On either side of the river the cliffs are crowned



Wm. Brinton 1912.

No. 39

TILLIE IN HOLLAND

These th. bush-gardens usually against a wall in the last part of April. They are difficult to paint, and purple tints are not so well. They are white and streaked.



No. 40

THE BLACK FOREST

The black forest is now in full bloom. The flowers are white, pink and yellow, and the leaves are green and yellow. Some of these flowers are blue.



No. 41

THE FALLS OF THE RHINE

Broken in its course by large fragments of rock, which at their wet heads above the rushing waters the Rhine dashes down into five columns, two of amazing grandeur and bursting past these barriers break in a roar of foam and a peal of thunder below.



No. 42

THE CLEAVER OF THE RHINE

The scene in the picture is No. 41, over which an engraver has a "row." He says, "The Rhine and water form the scene, a bridge for a castle, that is, in addition to the base, on the left, there is a double line of rocks, over which the stream passes, and on the base, a rock in the water."

with the ruins of numerous castles, one of which can be seen in the picture. After passing through the gorge, the Rhine enters the Great Plain of Northern Germany, and finally flows into the North Sea through a delta in Holland. Its general direction then is a north-westerly one, and since it is navigable for sea-going ships as high as Mannheim, 364 miles from its mouth, it is a very valuable highway for commerce. A north-westward direction also, illustrating the slope of the country, is taken by numerous rivers which rise in the southern highlands and flow across the Great Plain, chief of them are the Ems, Weser, Elbe, and Oder. Owing to the numerous bends which some of these rivers make, their important tributaries, and the general flatness of the plain, it has been possible to connect many of the streams by canals, and thus an extensive system of inland waterways has come into existence.

The climate of Germany varies remarkably little from south to north, since the high altitude of the south counteracts the influence of latitude, the chief exception to this is the sheltered and low-lying Rhine valley. The temperature tends to become more extreme, and the rainfall less, from west to east, as the influence of the Atlantic is less felt and the climate becomes more continental (see page 9). Still the rainfall is nowhere insufficient, and vegetation is abundant. A large part of the country, especially in the highlands of the south, is covered with forest, as is illustrated in picture 40. The Northern Plain is not very fertile, but it produces oats, rye, flax, hemp, and potatoes from which spirits are distilled. In the neighbourhood of Magdeburg sugar beet is cultivated, while, in the more fertile districts of Wurtemberg and Bavaria, wheat, barley, hops, and tobacco are grown, and on the sheltered terraces of the middle Rhine valley many varieties of grape flourish, as was pointed out on page 42.

Germany has also great wealth in her minerals, iron and coal lie within 50 miles of each other in Westphalia, coal is also found in Saxony and in Silesia, although the future government of the coal producing parts of the latter district is to be settled by the vote of its inhabitants. Zinc and lead are found in Silesia and at Aachen (or Aix la Chapelle) near Cologne, copper in the Harz Mountains, and silver in Saxony. Valuable potash salts used for chemical purposes, are mined at Stassfurt near Magdeburg. There are several important industrial regions in Germany based on these minerals. In Westphalia, the towns of Barmen and Elberfeld manufacture woollens and silks, Krefeld, silks and velvets, and Aachen, woollen goods. The cotton industry is largely developed at Chemnitz and Zwickau in Saxony. The sheep rearing of Silesia has given rise to the extensive woollen industries of Breslau and Gorlitz, though to day additional supplies of foreign wool have to be imported.

The manufactures of all these districts, although produced, for the most part, at some distance from the sea, can be easily exported owing to the fine railway and waterway communications of the North German Plain. This has also emphasised the importance of the German ports. Those on the Baltic are less valuable than the ports on the North Sea, since the former are farther from the open ocean and the great trade routes, again, they are liable to be frozen up in winter (see note to the maps on page 9), and are also less helped by tides (see page 8). Still, they include Stettin, the nearest seaport to Berlin, and the outlet, *via* the Oder, for the products of Silesia, and Lubeck, which is joined to the Elbe by a canal giving it easy access to the North Sea. In the Middle Ages Lubeck was the head of a confederacy called the Hanseatic League, which included nearly all the important sea and river-ports of Northern Germany. The object of the League was to put down piracy and to help oversea commerce, it became powerful enough to establish trading centres or "factories" at Bruges, London, Bergen, and Novgorod, near Petrograd. Among the other Baltic ports belonging to Germany may be mentioned Kiel, a naval station, and also connected by a ship canal with the North Sea. Further east are the ports of Dantzig, Konigsberg, and Memel, which export timber, grain, flax, hemp, and potatoes, produced in the neighbouring districts of Germany and Russia. The future of these towns is at present somewhat uncertain, but Dantzig has been made a free city under the League of Nations. By far the most important seaport of Germany is Hamburg, with its outport, Cuxhaven, on the Elbe. It owes its origin to being a bridge town in a marshy district, and the concentration point of many routes. Chief of them are that up the Rhine valley to Cologne, and thence *via* Munster and Bremen, that from Central Europe *via* Nuremberg the Main, Frankfort, Cassel, Gottingen, and Hanover, that from Silesia down the Oder, Spree, and Havel, which joins the through traffic along the Elbe that from the Baltic *via* Lubeck, and that up the Elbe estuary from the North Sea. The fact that all these routes meet at Hamburg, and that it is on an estuary, has made this port the chief export and import centre in Germany. Before the Great War it had the largest trade of any seaport on the continent of Europe, and was the fourth port in the world, being surpassed only by London, New York and Liverpool. Hamburg is connected with the Baltic by the canal to Lubeck. A picture (No 46) of the busy harbour of Hamburg is given on page 48. Another important German seaport fronting the North Sea is Bremen with its outport Bremerhaven on the Weser, it is connected by railways and waterways with the Ruhr coal fields and the textile towns of Elberfeld and Barmen. Emden, at the mouth of the Ems also provides an outlet for this region.



HEIDI BERC

No 4^o HEIDELBERG
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THE NARROW P1 C 87 M16K

THE MARKET PLACE REMARKS
This is the largest and most
convenient market place in the
country, and is well supplied with
all kinds of merchandise, and
is a great centre for the
commercial and social life of the
country.



Levy et al. & Co.

No. 45

COLOGNE CATHEDRAL

The open work ornamented spires are quite characteristic of the cathedrals of the Rhine district. The cathedrals at Constance, St. Asaph, and Freiburg are similarly adorned. The view given by looking up at the tall spires of Cologne Cathedral from the square at the west end of the building impresses one on the extreme.



New Photo Co.

No. 46

THE PORT OF HAMBURG

The foreign commerce of Germany grew enormously during the years prior to the Great War. This was due not only to the unification of the German States (see page 50), but still more to the development of the mineral resources of the country. Hamburg benefited by this because it has water-communications with the Baltic and also with the interior up the Elbe to Prague and up the Oder to Silesia.

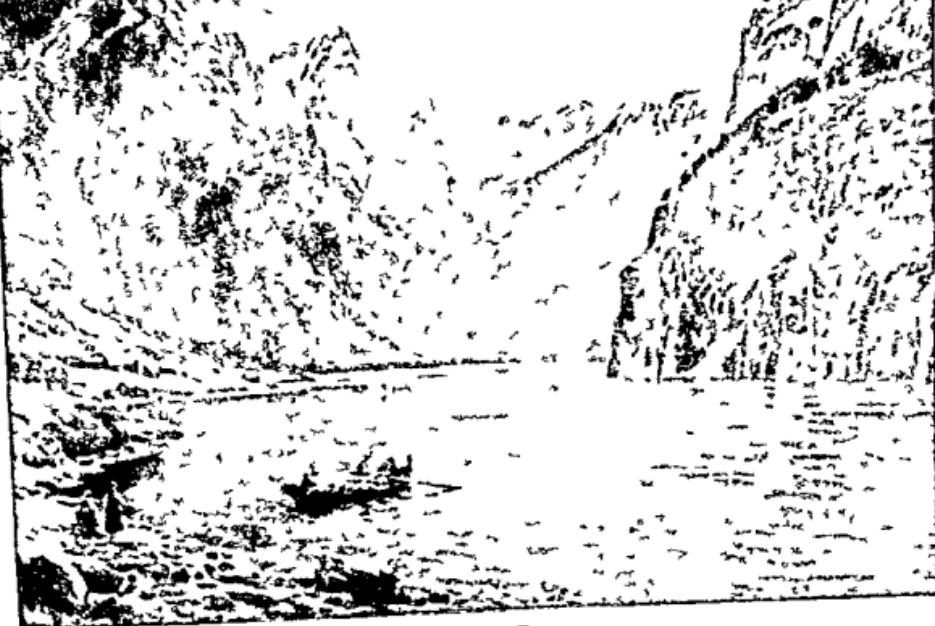
The capital of the country, Berlin, is situated in an unfertile district, and is not very near the chief mineral deposits of Germany. Its importance is due to its central position at the convergence of the waterways from the North Sea, the Baltic, Saxony, and Silesia. Besides Berlin, there are other inland towns of Germany, the prosperity of which is not specially due to mineral wealth or textile manufactures. Chief of them is the bridge-town of Cologne, with its beautiful cathedral, shown in picture 45. This cathedral was begun in 1248, but it was for long left unfinished, and did not reach its present form until the completion in 1880 of the south spire (the one in the picture nearest the spectator). The visitor is allowed to ascend this spire, and as he climbs up he can see, cut in the wall at different heights, the year when that stage of the tower was completed. The view from the top is very extensive. To the north stretches the Great Plain through which flows the Rhine, and in the distance can be seen the smoky chimneys of the Westphalian coal-field; to the west, the edge of the Ardennes can dimly be made out. Southwards lies the valley of the Rhine, and far away is the outline of the Sieben Gebirge, or Seven Mountains, on the right bank of the river between Bonn and Coblenz. Cologne is famous not only for its cathedral, but also for a perfume known as Eau de Cologne. It was invented by an Italian who settled in Cologne in the early part of the eighteenth century. His name—Johann Maria Farina—still appears on the bottles of genuine Eau de Cologne. Other important towns are Leipsic, which prints books and manufactures pianos; Dresden, which commands the Elbe route into Bohemia, and has given its name to the pottery made lower down the Elbe at Meissen; Munich, an important railway centre, and the town where the locally-grown hops are used in making beer; and Frankfurt, a great banking centre, not far from the confluence of the Rhine and the Main. Germany also possesses several towns celebrated for their beauty or their quaint mediæval buildings; among the best known are Heidelberg and Nuremberg, illustrated in pictures 43 and 44. Heidelberg lies at the entrance to the Neckar valley, near the confluence of that river with the Rhine. Its situation and its old buildings make it one of the most beautiful towns in Europe. It is the seat of a famous university, and contains the ruins of a castle which can be seen to the left of the picture. This castle was begun as early as the fifteenth century, but towards the end of the seventeenth century the greater part of it was destroyed by the French. Nuremberg is in Bavaria, a little to the west of the Fichtel Gebirge; it retains nearly all the features of a mediæval city, and its old walls are still intact. At every turn one sees quaint

old churches or houses, and in the streets there are many curious fountains, one of which can be made out in the picture

Before the Great War Germany was a rich and powerful country, and as she has great natural resources she will doubtless become so again. Her rise to importance took place within quite recent times. Formerly she comprised a large number of independent states and cities, but they were all more or less under the influence of Prussia. In 1870 there was a terrible war between the Germans and the French, in which the latter, after a brave resistance, were beaten. All the states and cities under the lead of Prussia sided together against the French. When they realised how powerful a combination they could make, they agreed to unite and form a single German Empire, and the King of Prussia was chosen to be the first German Emperor. But Germany was not content with her victory, and by increasing her military power she became a serious menace to all her neighbours. This led to the outbreak of the Great War, which began in 1914 and lasted for over four years. After a bitter struggle Germany and her allies, Austria Hungary, Turkey, and Bulgaria—the “Central Powers,” as they were called—were defeated by the Allied Nations. As a result Germany has been reduced in size. Her Emperor has abdicated, and it is to be hoped that her military system has been completely and for ever destroyed.

(c) Scandinavia and Denmark.

Thousands of years ago there was a great ice-sheet extending over much of Northern Europe. Along its edge earth and stones were deposited, and the rocky boulders which it carried beneath its surface wore out a deep bed, so that, when in course of time the temperature became higher and the ice retreated northwards, a great sea was left in the channels hollowed out by the glaciers, and it was ponded back by the matter which had been deposited. In this manner the Baltic Sea was formed, and Denmark and Scania, the southern peninsula of Scandinavia, are formed from the materials deposited along the edge of the original ice sheet. So also Lakes Wener, Wetter, and Malar in Sweden, and Ladoga, Onega, and many others in Russia and Finland, are glacial in origin. The greater part of Scandinavia consists of a plateau. Its average altitude is equal to that of Scafell, the highest mountain in England, but it rises in the south to peaks of over 8000 feet high. It slopes abruptly westwards, and more gradually eastwards. These highlands are known as the Kjolen Mountains in the north and centre, and as the Dovrefjeld, Jotunfjeld, and Hardangervfjeld in the south. The whole area has extensive snow-fields and glaciers, and is thus altogether unproductive. Along the western side of



A NORWEGIAN FJORD

No. 4

This picture shows the end of the Norwegian fjord just pictured. It is believed that since the time when the valley was carved out by a glacier, the fjord has sunk and the sea has flooded part of the valley thus forming a fjord. The English in the west of Scotland are of the same type.



FLOATING TIMBER IN SWELL

No. 45

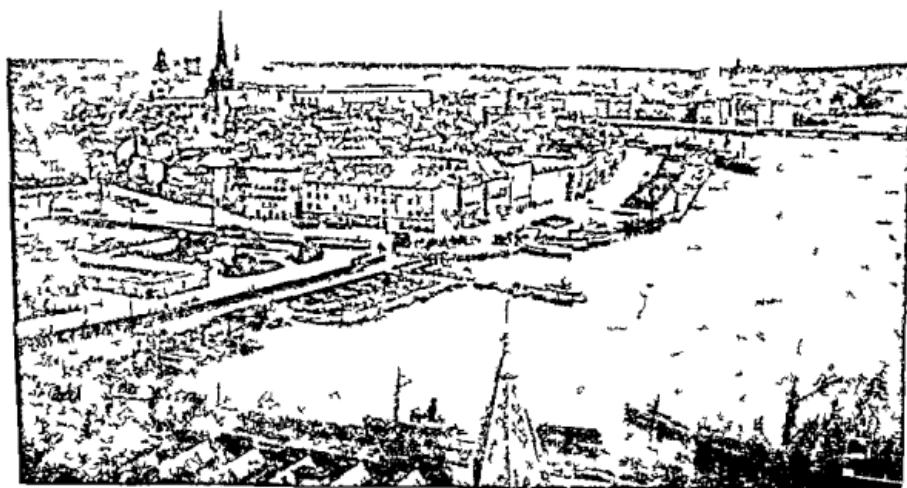
Down by floating or on the river over rapids or a rocky dropping down on the current of the river. The accumulated mass of timber is brought up at last by a strong boom placed across the stream. It is then sorted, appropriated by the men, hauled to whom it belongs and shipped for foreign parts. The lumber of Eastern Canada is sent to the same market.



10 49

COFFEE BASES

Io sono sicuramente un quartiere di bandiere e strade. There are many fine pines but in the Italian style, so covered by hedges and rows of private residence. It is rarely seen.



10 0

Stockholm

Scandinavia the coast is broken up by long and deep fjords (see picture 47), and fringed with innumerable islands, while the rivers are short and torrential; eastward the gradual slope makes the streams flowing towards the Baltic more navigable.

The mountainous western edge of Norway, fronting the Atlantic, produces a very heavy rainfall, and accordingly the whole region is densely forested; also the marine climate tends to counteract the effects of altitude as regards temperature. Sweden, being in a rain-shadow, receives much less moisture, and, since it is exposed to the east and is cut off from the south-west winds and oceanic influences, its climate is more extreme and its coast frozen in winter (refer to the January isotherm map on page 9).

Owing to the presence of forests in Scandinavia, timber and its by-products are important exports, and the torrential rivers afford abundant water-power; a picture (No. 48) illustrating this industry is given on page 51. The logs are felled during the winter, and then taken on sledges to the nearest stream. As soon as the ice melts the timber is floated down to the saw-mills, its course being guided by men armed with long poles. Along the coast of Norway, in the fjords and stretches of calm water protected by islands, there are fisheries of cod and herring. On the eastern plateau of Sweden, and especially in the south, agriculture is possible, oats, flax, and rye being the most important crops; in the Baltic island of Gotland, cattle are reared and butter is exported. Scandinavia has deposits of iron in the north of Sweden and in the neighbourhood of Upsala, of copper at Fahlun, and of lead and silver north of Lake Malar.

Sweden and Norway have been since 1905 separate kingdoms, the frontier following for the most part the water-parting of the mountain backbone. The capital of Norway, Christiania, and the ports of Stavanger, Bergen, and Trondhjem, are busied with the export of timber and fish; Tromsø and Hammerfest, in the extreme north, are also fishing centres. The capital of Sweden is Stockholm, a beautiful city at the entrance to Lake Malar. A general view of it is given in picture 50. To the north of it lies the university town of Upsala. The chief seaports are Gothenburg, on the Kattegat, which is conveniently placed as regards trade with Germany, France, and England; Malmo, opposite Copenhagen, which has trade with Denmark; and Norrköping, which exports butter, and has canal and lake communication with Gothenburg.

Denmark consists of the flat peninsula of Jutland and the adjacent islands; its chief industry is the rearing of cattle and poultry, and butter and eggs are exported. The only large town is Copenhagen, the capital, of which a view is given in picture 49. It has glove manufactures, for

which the skins of the Danish herds furnish raw material. To Denmark also belong the Faroe Islands, north of Scotland, and Iceland, the inhabitants of which earn their living mainly by fishing and collecting birds' eggs and eider-down. The chief interest of Iceland lies in the fact that it contains an active volcano—Mount Hekla—besides many geysers, one of which is illustrated in picture 51. Geysers are hot springs which spout up at intervals and are often found in volcanic regions.

III.—EASTERN EUROPE.

UNDER this heading may be included the Great Plain of European Russia, stretching from the Caspian, the Caucasus, and the Black Seas in the south, to the Arctic and the Baltic Seas in the north; and, in addition to this, the basin of the Danube, separated from the Russian plain by the Carpathian Mountains. Considering the size of this area, its relief is very monotonous, and, since the Carpathians form the only physical obstacle of any importance, all the Great Plain east of them was until recently in the hands of one power—Russia. Since the Great War, however, the country has broken up into a number of independent or semi-independent states.

The whole region may be divided up into areas of vegetation, to which reference has already been made on page 10. In the extreme north is the tundra; then comes a forest-belt consisting chiefly of pines, firs, and birch (see pictures 40 and 52); these gradually give place farther south to the oak and the beech. Most of the south of Russia is a wide tract of what was originally grass-land, but which is now under cultivation, and this is also the case with the Danube plain south of the Carpathians. In the south-eastern part of the Russian plain the grass-land still exists, and is known as "steppes." The whole plain, being unprotected by mountains, is exposed to the cold north and east winds, and is too remote from the Atlantic to get the benefit of maritime influences; the result of this continental climate is to produce deficiency of rainfall in most parts, and great extremes of temperature.

(a) Russia.

The Russian plain stretches eastwards from the Baltic and the frontiers of Poland and Rumania. Near its centre is a belt of low hills running roughly north and south, with an extension in the centre eastwards into the loop of the Volga at Samara, and another in the north running towards the centre of the Ural range. Along this upland a water-parting may be traced with three arms radiating from the Valdai Hills. In this neighbourhood rise some of the most important rivers of Russia—e.g., the Volga and several of its right-bank tributaries, the Don, Dnieper, Duna,



FIG. 50. A FOREST OF SILVER BIRCHES.

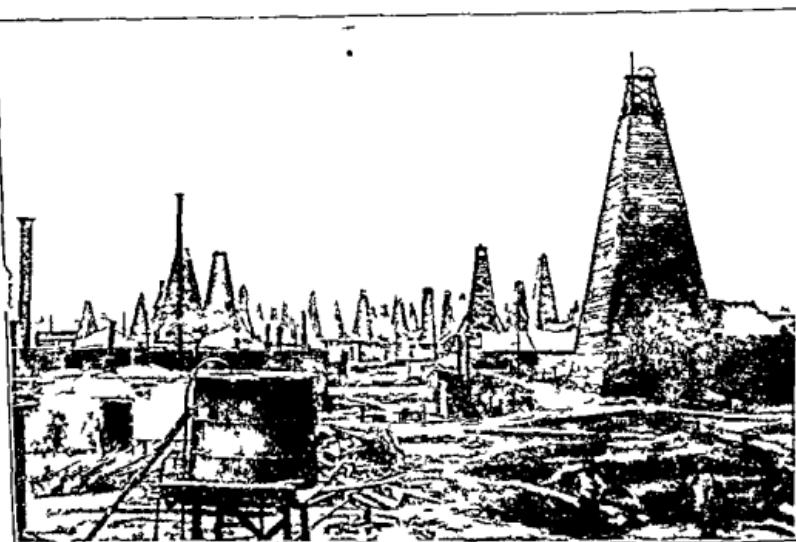
No 50.

The Larch Russian uses not only for fuel, but for many other purposes as well. From its bark are made ropes and buckets, and from its wood the handles employed in spinning flax into linen. Birch logs are also used to give the best smoke for curing fish. The larch is as deciduous tree, but it tends to grow farther north than the oak and larch.



FIG. 51. THE LEAVES OF SILVER BIRCH.

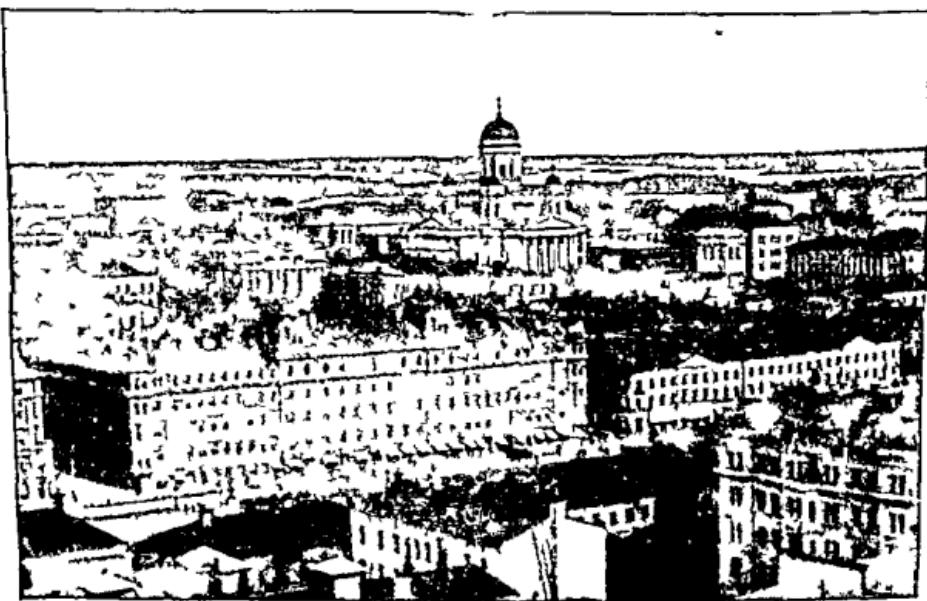
Imagine a shrub or a park-like water place growing up on a hill side, or in a valley, or in a clearing, where the trees of the forest do not grow, but where silver birch trees stand in the sun.



No 53

PETROLEUM WELLS AT BALU

To obtain the petroleum a hole is bored by machinery into the ground until it reaches the stratum, in which the oil is found. Then an explosive is lowered to the bottom of the well, and there discharged. The oil which thus sets free comes rushing up at first like a geyser, but soon the flow diminishes and the oil has to be pumped up.



תְּבִ�ָה

The town has a splendid port on the Gulf of Finland, but it is rendered in winter useless, the January temperature being 30° below zero. The town has won all shipping business to and from the Baltic, except a portion of it, however, by steamship. It is also a port of call for the French fleet, which has been sent to the Baltic by the French government.

Neva and **Dvina** Since these rivers flow through a large plain their current is, on the whole, slow and steady, and they are thus available as waterways, but some of them—e.g. the Volga—are obstructed by sand banks or else by rapids—e.g. the Dnieper. The rivers of Russia have all alike the great disadvantage that they flow to seas which are either entirely land locked, as the Caspian, or almost land locked and liable to be frozen up in winter, such as the Baltic and Black Seas. The Dvina flows to the White Sea, which is blocked by ice for half the year. Hence, in proportion to her size, Russia is of small commercial importance.

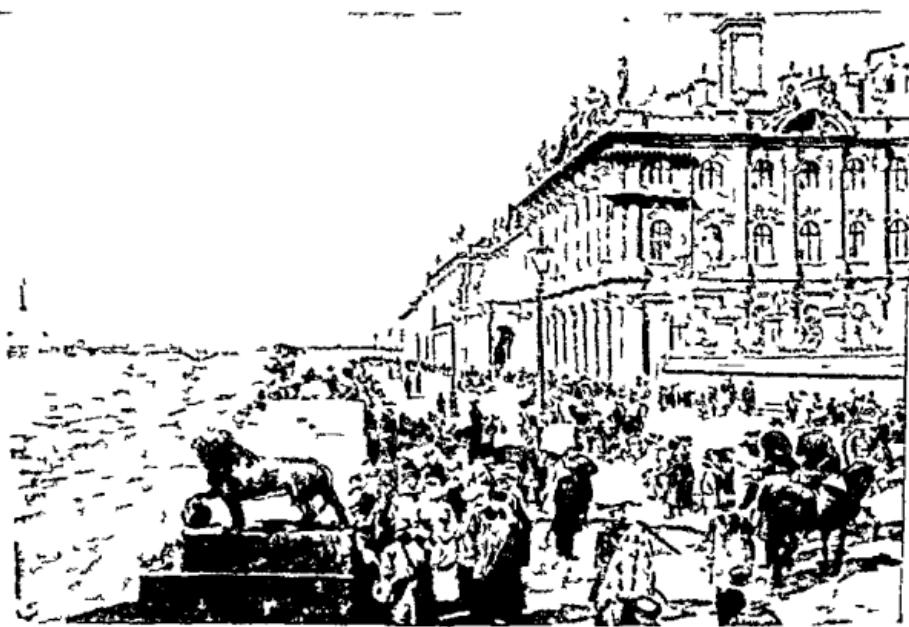
The **plum** of Russia extends from north to south through 20 degrees of latitude, and therefore, as has been seen, presents a great variety of vegetation. The coniferous forests directly south of the tundras produce pitch and tar, while the bark of the silver birch (see picture 52) is used for tanning the local hides, and so producing "Russia" leather. In Finland, more especially, paper is made from wood pulp in factories driven by water power. The forest region also provides a home for various fur bearing animals, but it is being cleared in places for the growing of oats and rye. In the clearings of the deciduous forests flax and hemp flourish on the rich mould formed by the fallen leaves. The most fertile part of the grass lands south of the forest belt is a black earth region in South West Russia, where wheat, maize, barley, tobacco, and sugar beet are grown. Farther east, in the Steppe region, it is impossible to cultivate the grass land owing to the lack of rain and the excess of salt in the soil, the chief industry is therefore the rearing of herds of horses and cattle. The lower Volga, between Saratov and Astrakhan, is noted for its sturgeon fisheries. In the sheltered region of Circassia, along the north east coast of the Black Sea grapes, olives, and other Mediterranean fruits can be grown while on the western shores of the Caspian there are extensive petroleum springs (see picture 53). Petroleum is used for making illuminating oils as well as for heating purposes. It also furnishes petrol for driving motor cars.

Russia has considerable mineral wealth which is but little developed at present. Coal and iron are found near together in the valley of the upper Don in the Ural district near Perm, and in the south west of Poland. Coal is also mined in the valley of the Donetz and iron at Krivnoi Rog north of Kherson. The Urals contain gold, copper and platinum in the neighbourhood of Ekaterinberg and salt is found in an area lying below sea level, north of the Caspian. The presence of coal has encouraged the development of cotton manufactures at Lodz in Poland which receives its supplies of raw material via Danzig and the



No. 55

THE KREMLIN, MOSCOV
The Kremlin is a fortress built of stone and wood, situated on a hill. It is surrounded by a high wall and towers, and is the residence of the Emperor of Russia. The towers are topped with golden domes and spires, and the walls are made of large blocks of stone.



No. 56

THE WINTER PALACE, PETERSBURG
In March, 1917, the Russian Empire came to an end and the Tsar abdicated. Since then the country has been in a state of confusion and an era of political change has begun. Much has been passed under the new government, and the old Bolsheviks have

Vistula, and also manufactures much of the flax grown locally. Poland is now an independent country made up of districts which formerly belonged to Russia, Germany, and Austria. It is rich in coal and iron, and these have given rise to the manufacture of machinery and leather goods at Warsaw. Moscow also has coal and iron in its neighbourhood and manufactures textiles and other goods, it possesses a large number of indescribably beautiful churches, nine of which are cathedrals. A view of this city is given in picture 55. Iron ore is smelted at Tula, which is in the region of the Don coal and iron deposits.

The chief seaport of Russia is Petrograd, connected with the deep water at Kronstadt by a ship canal, until recently it was the capital of the country and contains the famous Winter Palace, a picture of which is given on page 58. Other ports are Archangel on the White Sea, Riga, which does business in flax, hides, and timber, Reval, which has recently become a place of import for cotton, and Helsingfors, the capital of Finland, illustrated in picture 54. Finland was formerly a part of the Russian Empire, but it declared its independence in 1917. Riga is on the Baltic, and Reval and Helsingfors on the Gulf of Finland. The chief Russian port on the Black Sea is Odessa, which has for its hinterland the black earth region and the Krivnoi Rog iron district. Other ports in the south of Russia are Kherson, at the mouth of the Dnieper, and Nikolaev, a naval station. On the Caspian are Astrakhan, a fishing centre, and Baku (see picture 53), which, with Batum on the Black Sea, is concerned with the local petroleum industry.

Owing to the scattered population of the Great Russian Plain, trade inland is still carried on, to a large extent, by means of fairs the best known are those of Nijni Novgorod on the Volga, where European and Asiatic products are exchanged, and of Poltava, Kief, and Kharkof in the black earth region.

(b) Danubeland.

The Danube rises in the Black Forest (see page 42) and flows eastward across the plateau of South Germany, until it crosses the Austrian frontier between the Bohmer Wald and the extreme eastern end of the Alps. Passing Vienna, it suddenly bends southwards between the Bakonyer Wald and a mass of mountains at the north west end of the Carpathians. It flows in this direction across the Central Plain of Hungary, receiving many important tributaries—*e.g.*, the Theiss, Drave, and Sze. At its confluence with the last named stream, where the town of Belgrade (see page 27) has been built, the Danube again turns eastward and passes over some rapids through a gorge known as the 'Iron Gates' between

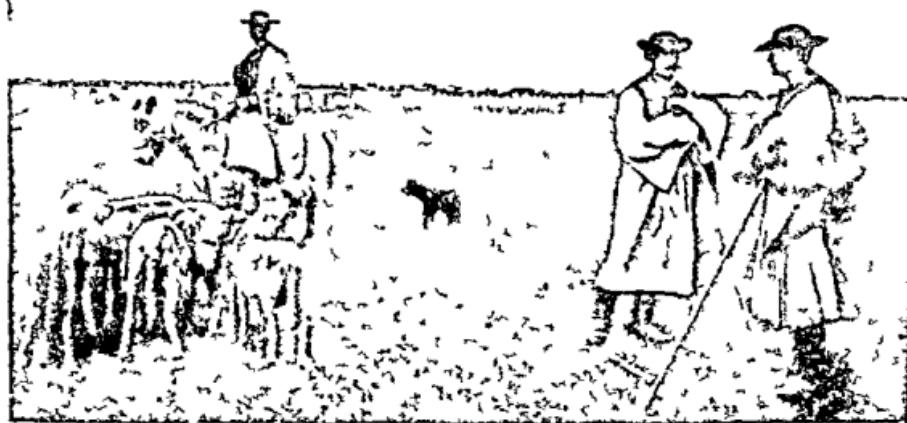
the Carpathians and the Balkans. After this it enters another plain not unlike that which it has just left; and then flows between Rumania and Bulgaria, until—after another bend northwards and eastwards—it finally enters the Black Sea.

Austria occupies part of the upper basin of the river; it includes also the Eastern Alps, drained by several of the tributaries of the Danube, such as the Inn, Enns, Drave, and Mur. East of it lies Hungary which comprises part of the plain between the Carpathians on the north and the mountains of the Balkan Peninsula on the south. North of Austria and Hungary lies the republic of Czechoslovakia which became independent in 1918. It includes the great plateau of Bohemia, shut in by the Bohemian Forest and the Erz and Riesen Gebirge, as well as Moravia and part of Silesia. The chief town of the whole region is Prague, on a tributary of the Elbe. It commands the route from Bohemia into Germany and is chiefly concerned with making hardware and glass. Pilsen, in northern Bohemia, has textile industries and manufactures beer and sugar, for hops and sugar-beet are grown in the neighbourhood.

The climate of most of the Danube basin is one of extremes; this is especially the case with the lowland plains of Hungary, which have a typically continental climate. The only part which receives any considerable rainfall is the mountainous region near the head of the Adriatic, which gets the benefit of the Mediterranean winter-rains. Rye, oats, and timber are produced in Austria, while Hungary has vast grass-lands on which herds are pastured (see pictures 9 and 57), and raises wheat, maize, and tobacco. Timber is also an important product of the highland regions of Austria and of the Carpathians, while horses, cattle, and poultry are reared in the Great Plain of Hungary.

The mountainous regions surrounding the Danube basin are rich in minerals. Czechoslovakia has abundance of coal, and there are considerable iron deposits also in Bohemia; gold and silver, too, are found in this region. Austria has coal and iron, and before the Great War carried on important manufactures of pottery, glass, textiles, and machinery. In Styria, a province south-east of Vienna, iron and steel are manufactured at Gratz and Klagenfurt; and this industry is based on a kind of coal called lignite which is found in the neighbourhood. Austria has recently lost one region—Galicia—which has salt-mines near Cracow. Galicia, which lies north-east of the Carpathians, outside the Danube basin, has been divided between Poland and Russia. Besides Cracow, it contains Lemberg which is an important town because it commands the through traffic between the valleys of the Vistula and the Dniester.

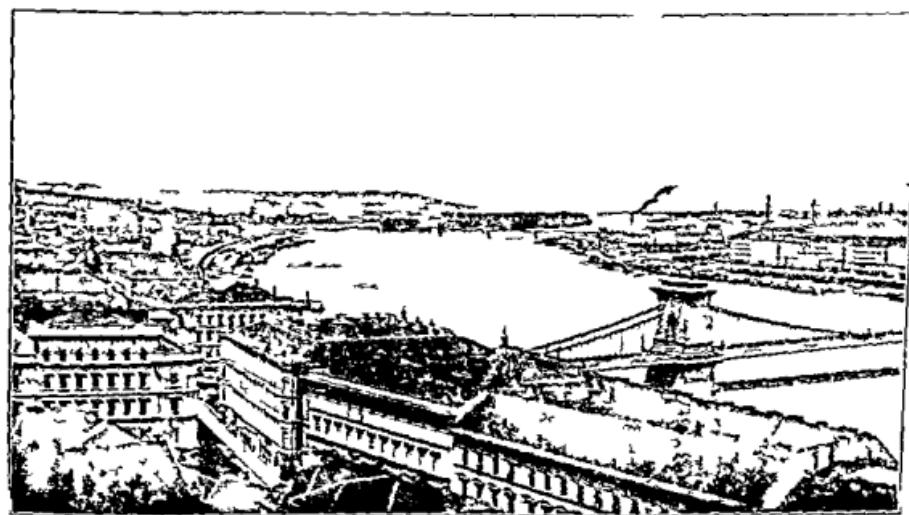
Vienna, the capital of Austria, has various manufactures, but its site,



No. 5

SCENE IN THE DANUBE PLAIN

The soil of the Hungarian plains is as a rule fertile owing to the fact that it is alluvial, brought down by rivers, hence the grass-land is being more and more cultivated for growing wheat and maize. The peasant dress is very simple fabric, i.e. in a simple sheepskin with the wool turned inward.



No. 6

BUDA PEST

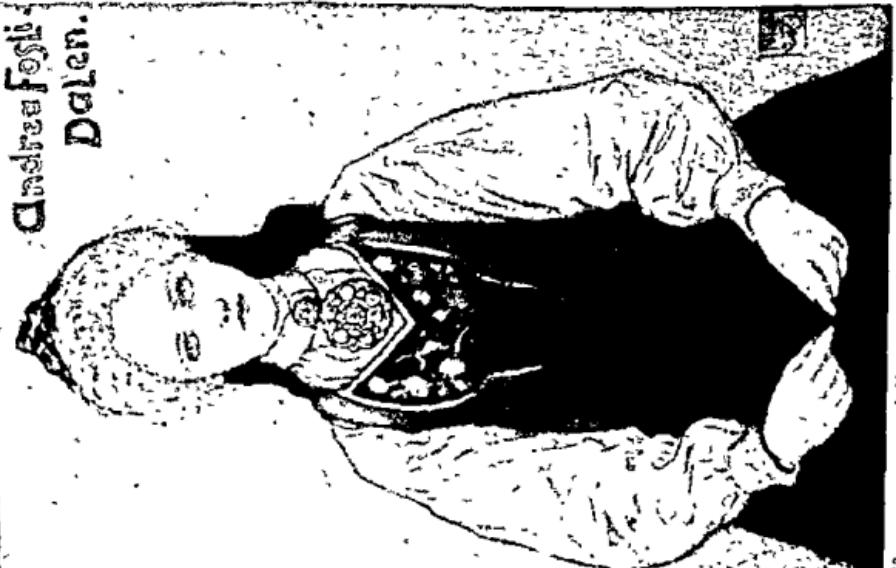
Buda is the Austrian name of an old town on a hill on the west bank of the Danube, and Pest is Hungarian name for a new town on the opposite bank, lying in the plain which can be seen in the picture. The place became important because it is the lower point on the Danube where the river could be conveniently bridged.

a LAPP Mother



No. 60.
A LAPP WOMAN.
"It is certain that the Lapps were the first inhabitants of Norway. They are untrained, unskilled. They have small eyes, very low forehead, flat noses, and thick lips and mouths."

Andrea Fosli.
Dalen.



No. 61.
A NORWEGIAN GIRL.
The Norwegians are the descendants of the ancient inhabitants of Norway. They are the same in the northern parts of the country, but it is gradually disappearing. It is a very good girl, but she is not very good at home.

as in the case of Paris (see page 36) and Hamburg (see page 46), has been determined chiefly by its position at the junction of many through routes. Among these are that from Germany *via* the Elbe and Moldau valleys, that from Russia, through the Moravian Gate and the valley of the March, that from Constantinople, described on page 27, that from the head of the Adriatic and over the Semmering Pass, and that from the west along the northern front of the Alps. Buda Pest, the chief city of Hungary, is mainly concerned with grinding into flour the grain grown in the Hungarian Plain. A view of it is given in picture 58. Other important Hungarian towns are Debreczin, the centre of the horse and cattle industries of the Hungarian Plain, and Szegedin, a populous town near the confluence of the Maros and the Theiss. Formerly the Austro-Hungarian Empire used to have an outlet on to the Adriatic and possessed the two ports of Trieste and Fiume. But as a result of the Great War Trieste passed into the hands of Italy, and Fiume has also been taken away. Thus both Austria and Hungary are now cut off from the sea and their territory has been considerably reduced in size.

(c) Rumania.

Between the Carpathians and the lower Danube, and including Transylvania, lies the independent kingdom of Rumania. The Plain on the left bank of the Danube is similar to that of Central Hungary, and produces wheat and maize. Along the eastern face of the Carpathians petroleum is also found. The capital of Rumania is Bukarest, Yassy is the centre of the petroleum district, and Kustenji, in the Dobruja, is the chief port of this region.

THE PEOPLES OF EUROPE.

EUROPE includes many types of men who would at once recognise each other as foreigners, quite apart from their differences of speech. We can distinguish four main races, three of which belong to the western or Caucasian type, and the other to the eastern or Mongolian. The former include first the long and narrow headed northern race with blue eyes and flaxen hair, the Norwegian girl, in picture 59, affords a good example of this. Then there are the central Europeans or Alpine race, with round heads and darker complexions. South of them is a race of narrow headed people with dark eyes and hair, they are probably the primitive inhabitants of Europe, and are known as the Mediterranean type. Quite distinct from these three Caucasian races is the Mongolian stock to which belong the Samoyeds and Lapps of Northern Russia and the Magyars of South

Eastern Europe. As may be gathered from picture 60 and from the Lapp in picture 8, they are short of stature and have straight hair and oblique eyes, reminding one of the Chinese, to whom indeed they are akin. Not only can we distinguish the various races by their appearance, but some writers have even assigned to them characters of different kinds. For instance, it is said that the northern race is slow and conservative, but at the same time industrious and honest, while the Mediterranean stock is intelligent and cheerful, but excitable and fond of pleasure. The Mongolian peoples are usually given rather a bad character, for although they are said to be as a rule hospitable and patient under hardships, yet they tend to be selfish and indulgent, and their unsettled nomadic life leads them to hold human life very cheap, and to be at times brutally cruel. It must be remembered that many of these races—especially in the more civilised parts of Europe—have intermarried, and mixed types are the result; hence it is often difficult to decide to which stock a man belongs in virtue of his physical or moral characteristics.

The chief languages of Europe may be classified under five headings: those of Graeco-Latin origin, spoken in the south-west; the Teutonic tongues of the north-west and centre; Slavonic languages, spoken in Czechoslovakia, the northern part of the Balkan Peninsula, and throughout Russia; Keltic dialects, which still survive in the highlands of the extreme west; and Mongolian languages, which include Finnish, Hungarian, and Turkish. It should be noticed that the distinctions of race do not necessarily correspond with those of language.